DOCUMENT RESUME

ED 127 434 CE 007 573

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TITLE Drafting Exercises to Improve Understanding. Industrial Arts Series No. 10,007.
INSTITUTION Mississippi Research and Curriculum Unit for Vocational and Technical Education, State College.
SPONS AGENCY Mississippi State Dept. of Education, Jackson. Div. of Vocational and Technical Education.
PUB DATE 76
NOTE 47p.

EDRS PRICE MF-$0.83 HC-$2.06 Plus Postage.
DESCRIPTORS *Classroom Materials; *Drafting; *Industrial Arts; *Instructional Aids; Instructional Materials; Trade and Industrial Education; Vocational Education; *Workbooks

ABSTRACT

These materials, which can be used to supplement a drafting program, are designed to assist the instructor in helping students develop a better understanding of certain areas of drafting. The materials are divided into exercises that allow the student to devote full attention to one aspect of drafting at a time, and tests, which can be used either for determining student's degree of understanding, for additional exercises, or for use as part of a regular testing program. Instructions are given for exercises and tests, both of which cover: Scale Measuring, Orthographic Projection, Hidden Lines, Dimensioning, Isometric Construction, and Cabinet Drawing. This unbound material was prepared to be easily traced onto ditto or mimeograph stencils for reproduction. (HD)

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ED127434

Drafting Exercises To Improve Understanding

Sponsored by the

Division of Vocational and Technical Education
Mississippi State Department of Education
Jackson, Mississippi

Published by the

Mississippi State University
Research and Curriculum Unit
for
Vocational and Technical Education
Mississippi State, Mississippi

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Industrial Arts Series
Publication Number 10,007

1976

CE 007 573

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Vocational-Technical Education
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Mississippi State, Mississippi 39762

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AUTHENTICATION COMMITTEE

The material in this publication was reviewed and endorsed as being appropriate and beneficial for inclusion in the industrial arts curriculum by an authentication committee. Deep appreciation is extended to the members for their time and valuable suggestions.

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Appreciation is extended to Mrs. Donna Breckenridge for the cover design.

INTRODUCTION

This material is not a course of study, a unit on drafting, or daily lesson plans. It is material that should prove helpful, however, in supplementing your drafting program. It has been designed with the idea of assisting you in helping your students develop a better understanding of certain areas of drafting. To this end both exercises and tests are included in the material.

The exercises are designed to allow the student to devote full attention to one aspect of drafting at a time. Not needing to be concerned with other aspects, the student more easily grasps and understanding of the one item under study. An example of this is the study of hidden lines. Traditionally, the student is required to make a three-view drawing and include all hidden lines. In actuality, when using this approach appromixately 5 percent of the student's time may be spent on drawing hidden lines, while about 95 percent of the time required to complete the assignment is devoted to other aspects of drafting.

The rationale used in these exercises is simple. It is based upon the belief that when learning to understand and do a certain thing, you should study and work on that particular thing. With this thought in mind, the exercises have been completed with the exception of the one particular aspect you are teaching the student.

An appropriate time to use the exercises would be immediately following your presentation of new information to the students. Letting the students do a few quick exercises at this time will allow them to put your information to use now—not several days later when it comes up on the drawing. But remember, these exercises are supplemental material only, and your regular plate assignments should follow.

Tests are also included in the material. These may be used to determine the degree to which the students understand the aspect just taught, or they could be used at the end of a unit as part of your regular testing program. They could also be used as additional exercises.

No attempt is made in this material to provide the information necessary to conduct your instructional program in drafting. As industrial arts teachers, you will recognize the need for such instruction and possess the expertise necessary to provide the information to your students at the appropriate time.

The material purposely was not bound in booklet form. It was prepared to be easily traced onto ditto or mimeograph stencils for reproducing the number you will need for your classes. Don't throw your stencils away after they are used. Save them in a folder so you can have additional copies made when your supply is depleted.

EXERCISES

INSTRUCTIONS FOR EXERCISES

These exercises were designed as supplemental material to provide practice for students as they study certain aspects of drafting. Obviously then, each series of exercises should be used at the time students are studying that particular phase of drafting. For example, the exercises for orthographic projection should be used while students are studying this method. These exercises could be worked before or during regular plate assignments on orthographic projection.

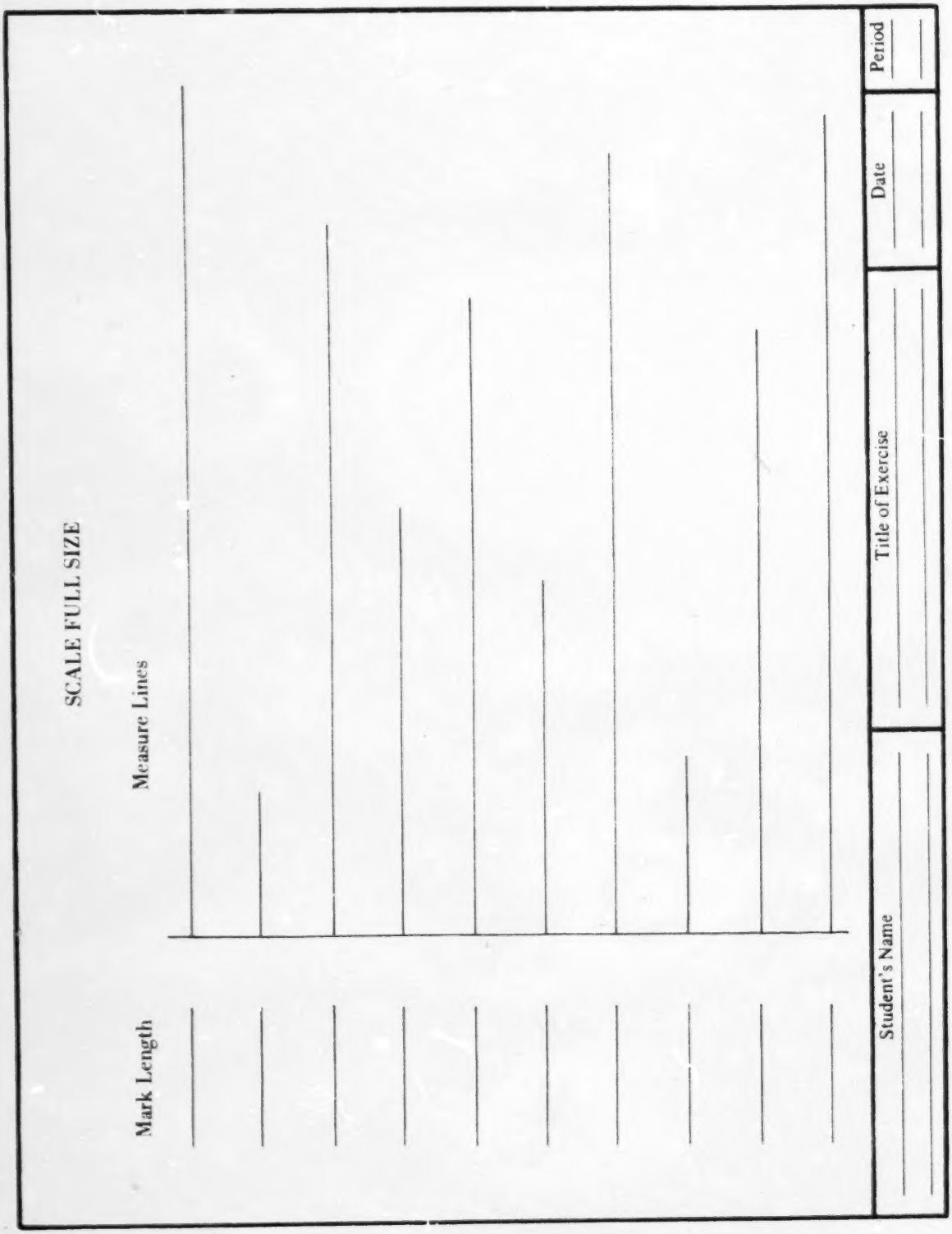
Students should be instructed to read the **recommended use** section appearing on the top of each page. This contains two important items of information pertaining to the assignment. First, it indicates the position in which the paper should be lined-up on the drawing board. And secondly, it states what the student is expected to do to complete the assignment.

It is recommended that all assignments be done using instruments. If you included a unit on sketching, however, you may wish to use some of the assignments a second time for that purpose.

Correcting students' work can be done quickly with the aid of a grading key. Simply complete the assignment yourself and tape onto a light table. Place the students' work over the grade key and errors are visible.

Title: *SCALE MEASURING*

Recommended Use: *Place title block to bottom of board and letter. Using scale indicated, measure lines and mark lengths.*



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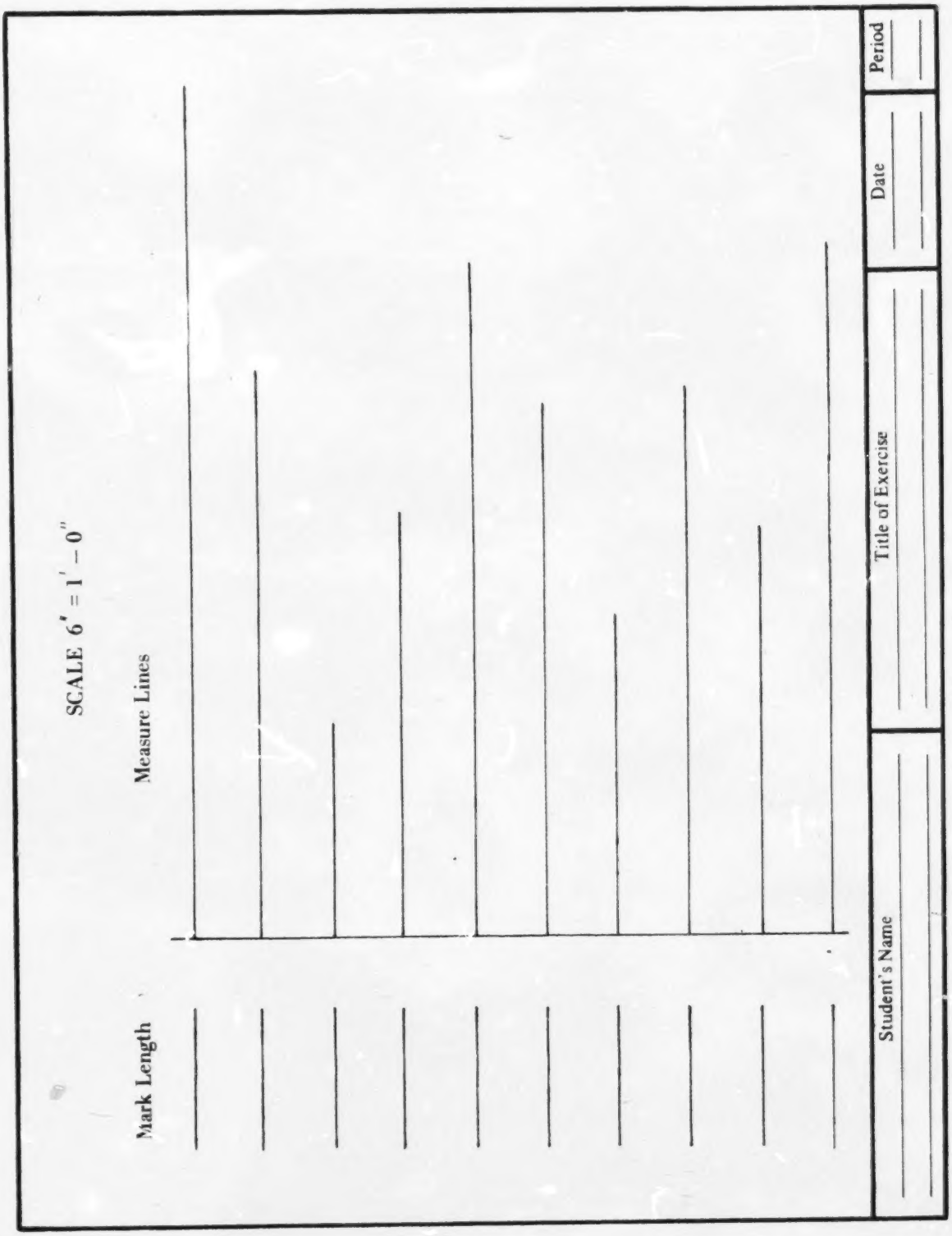

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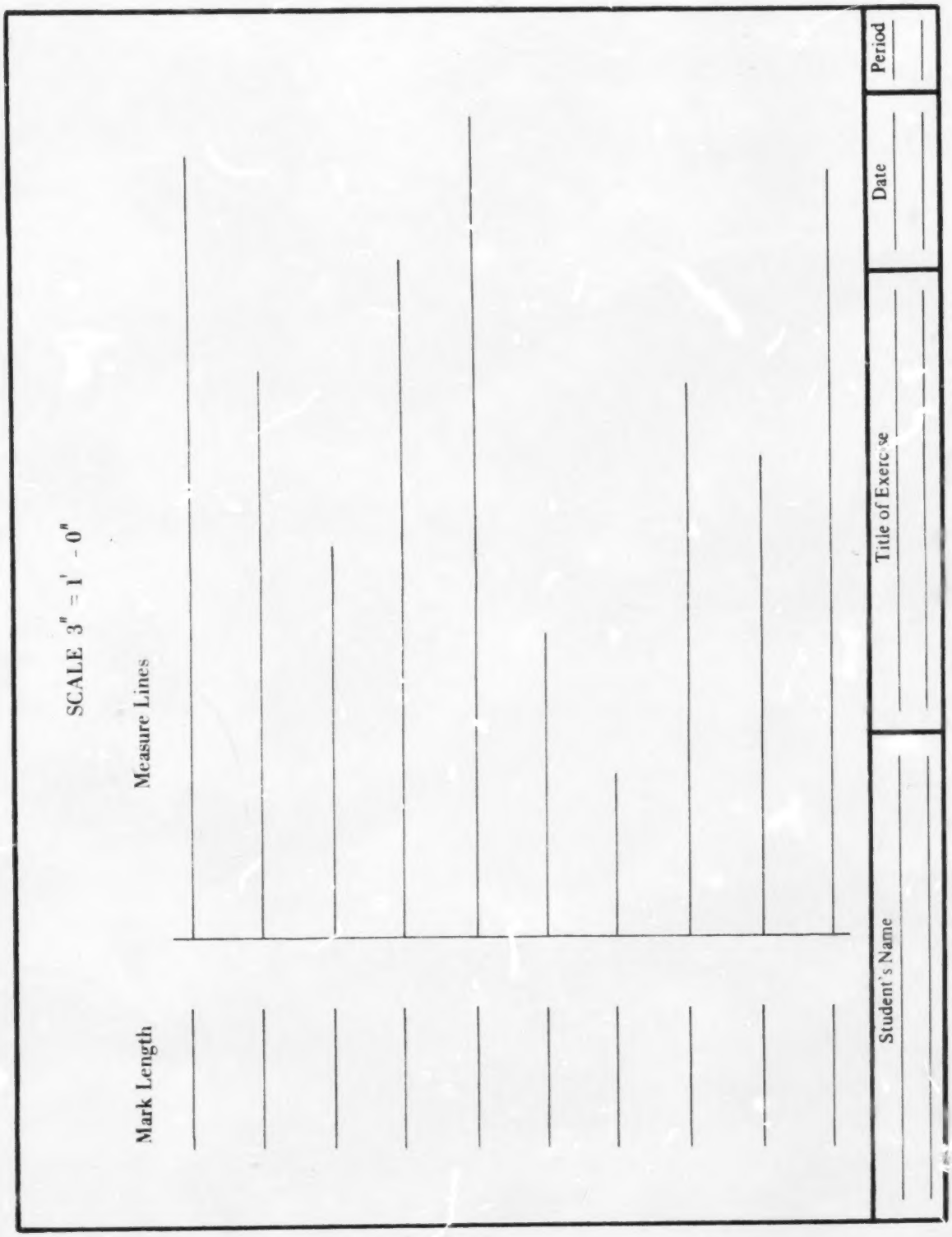

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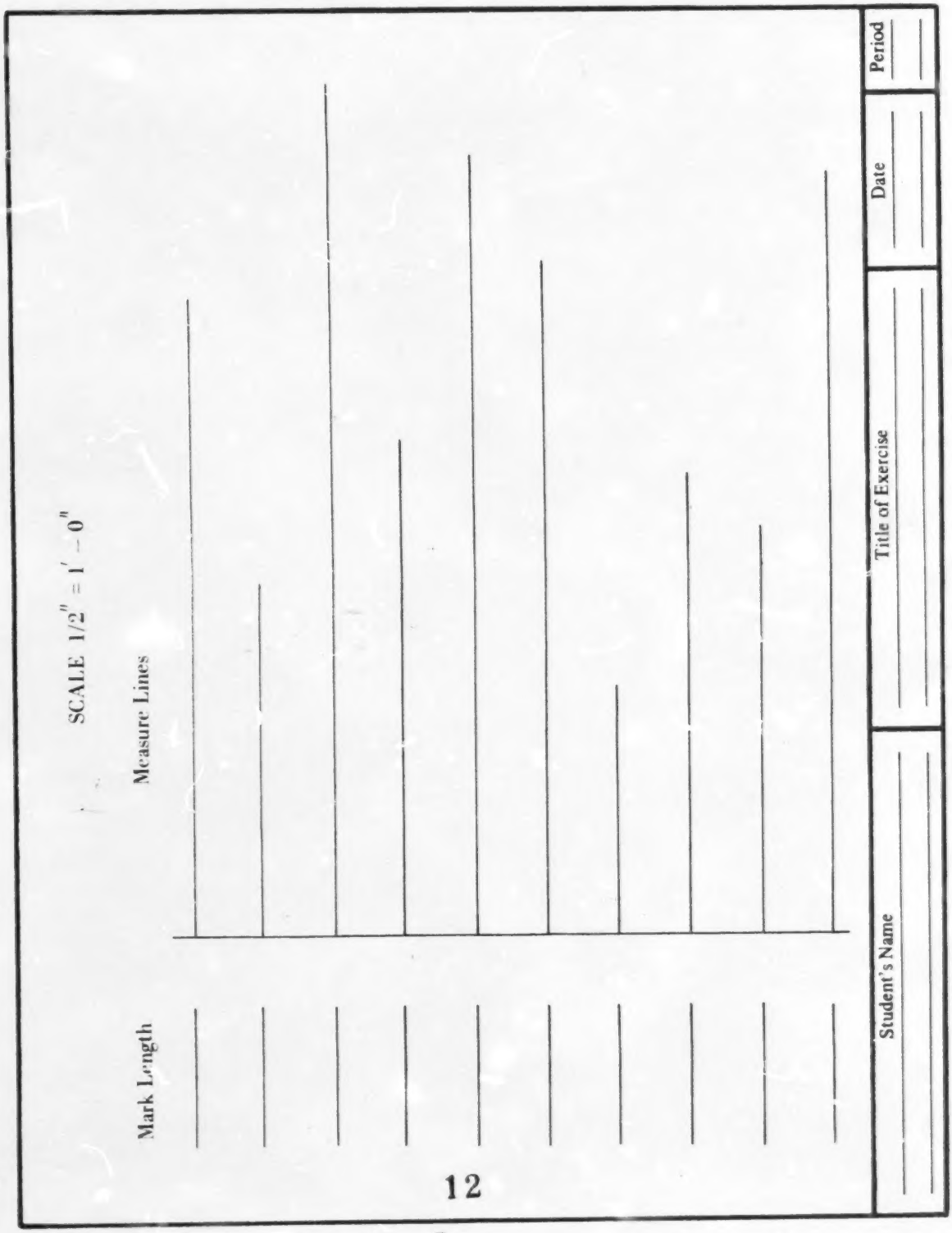

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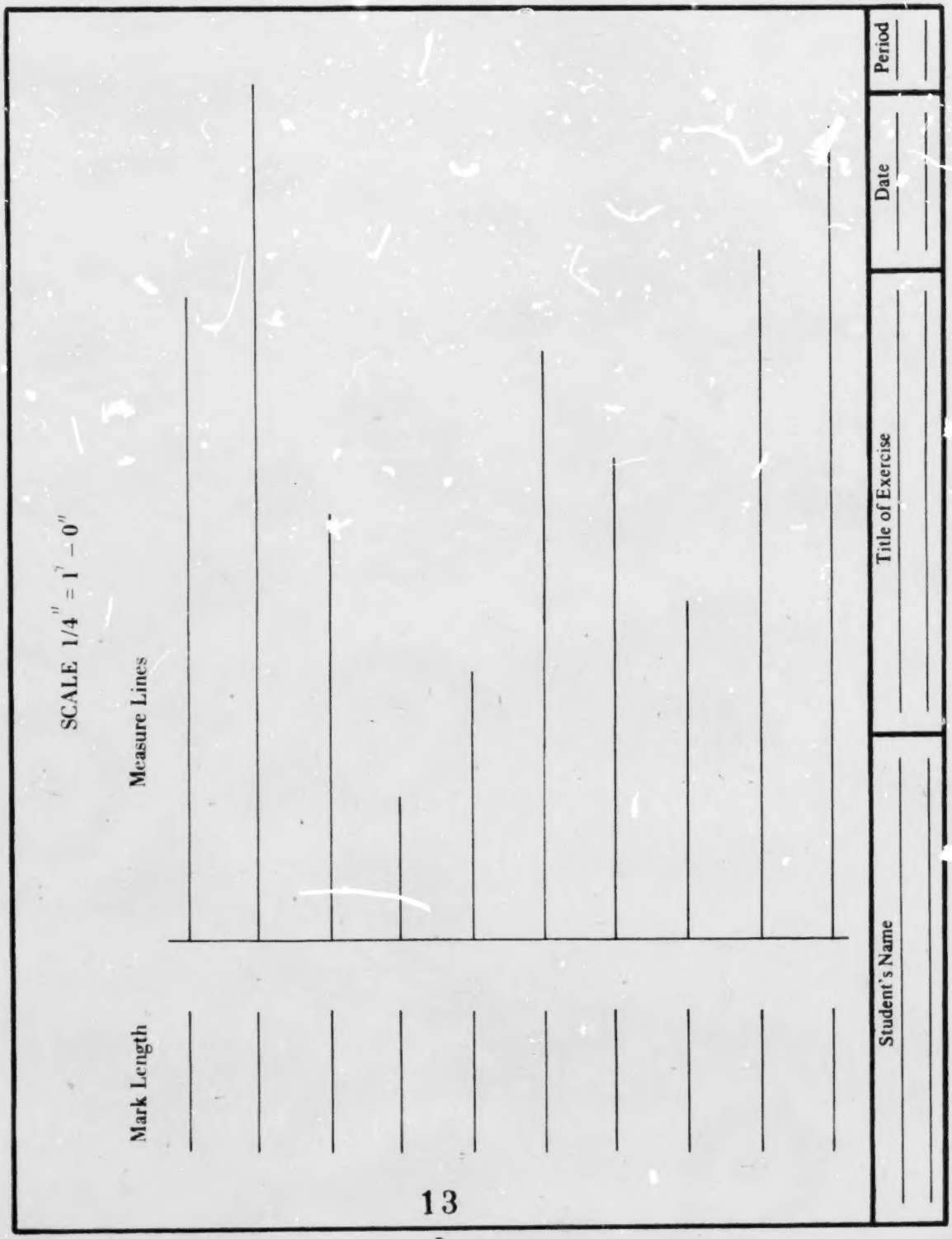

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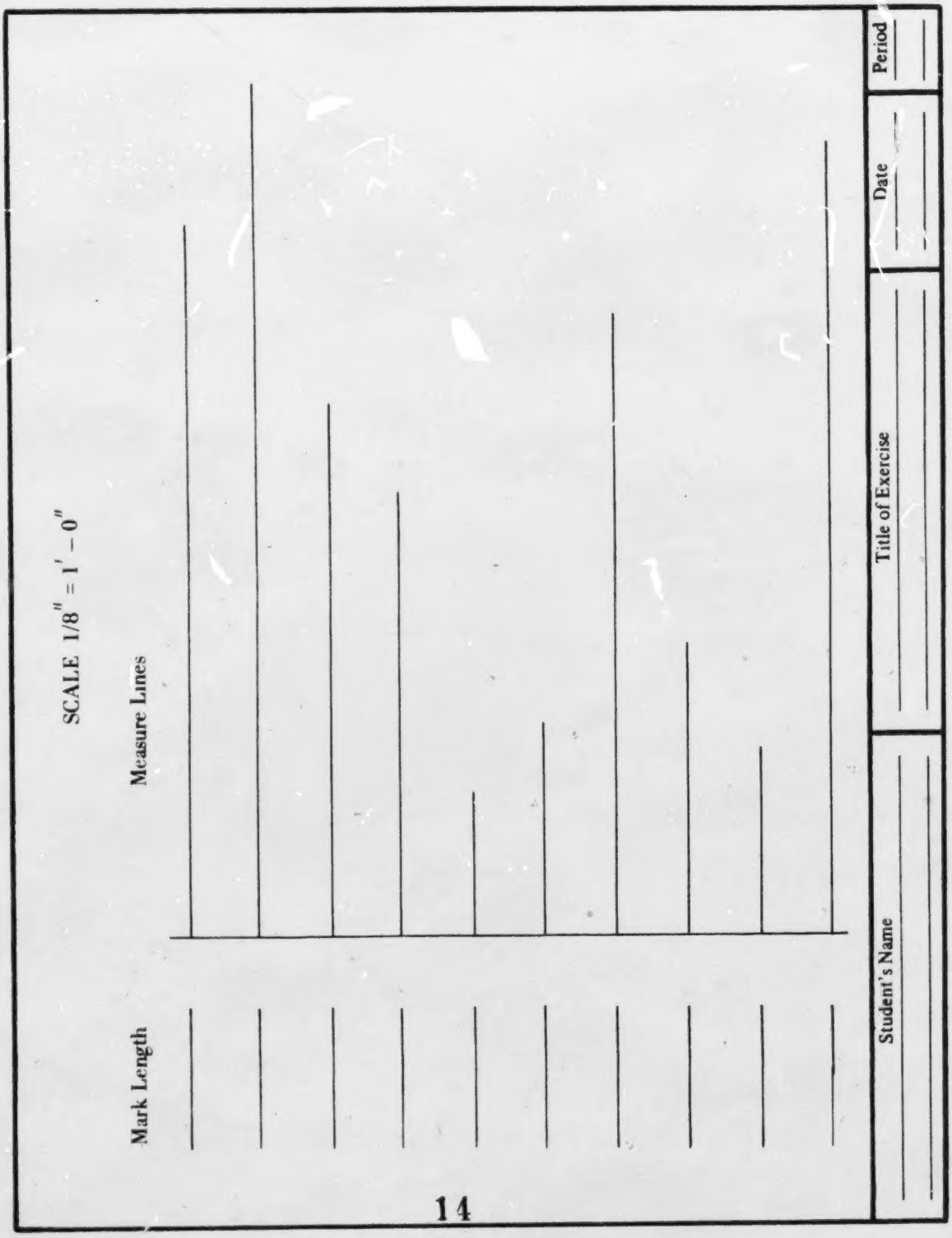

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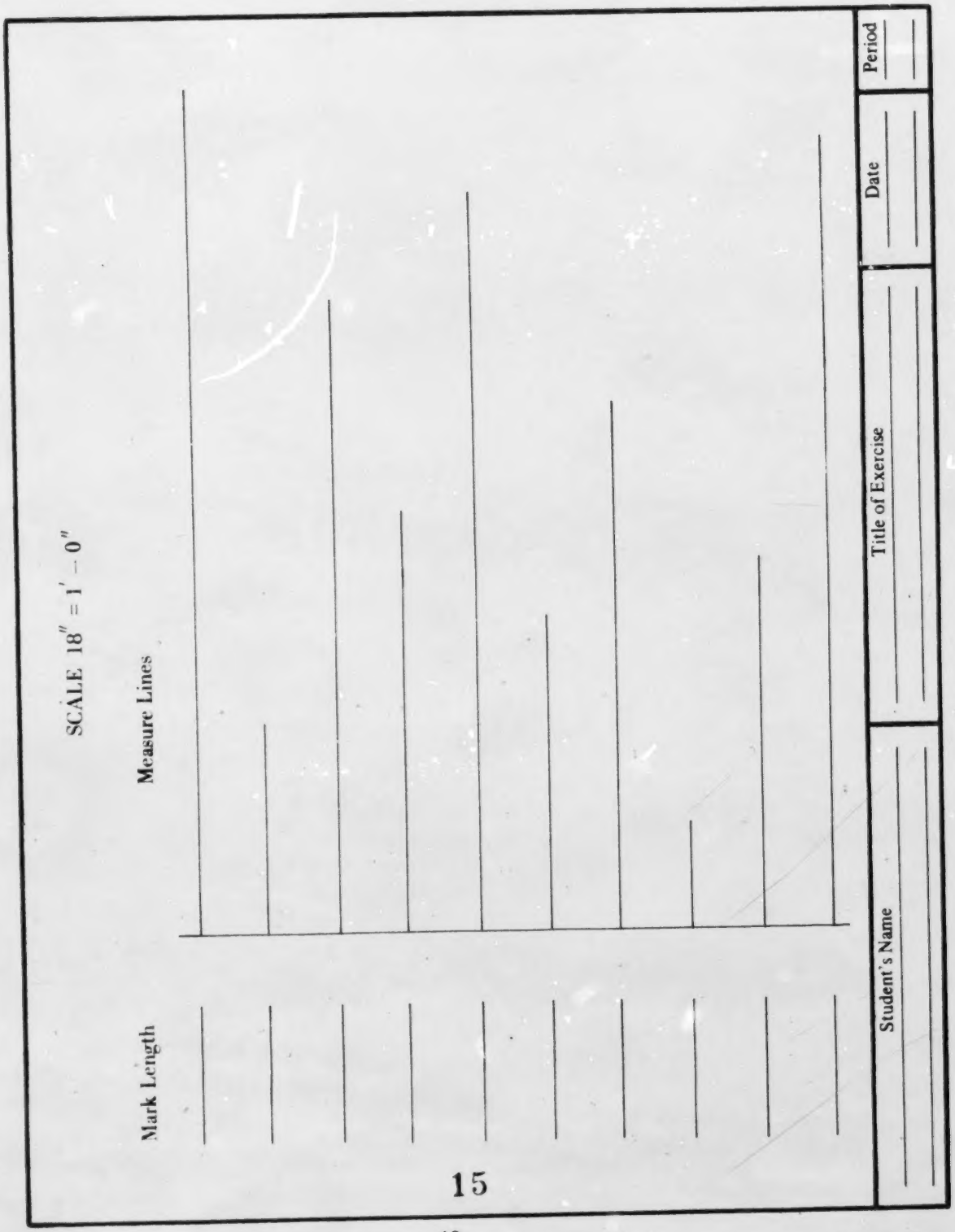

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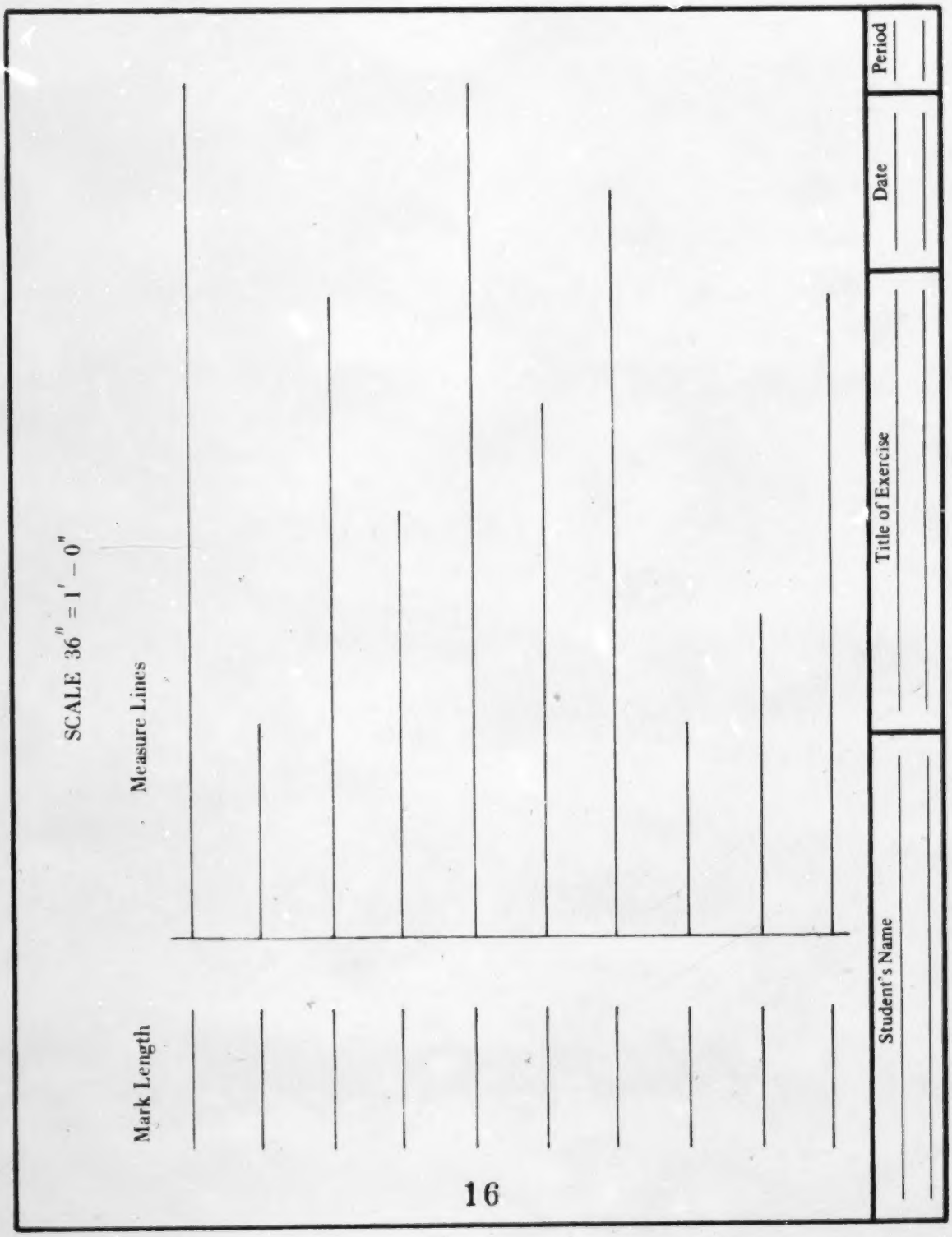
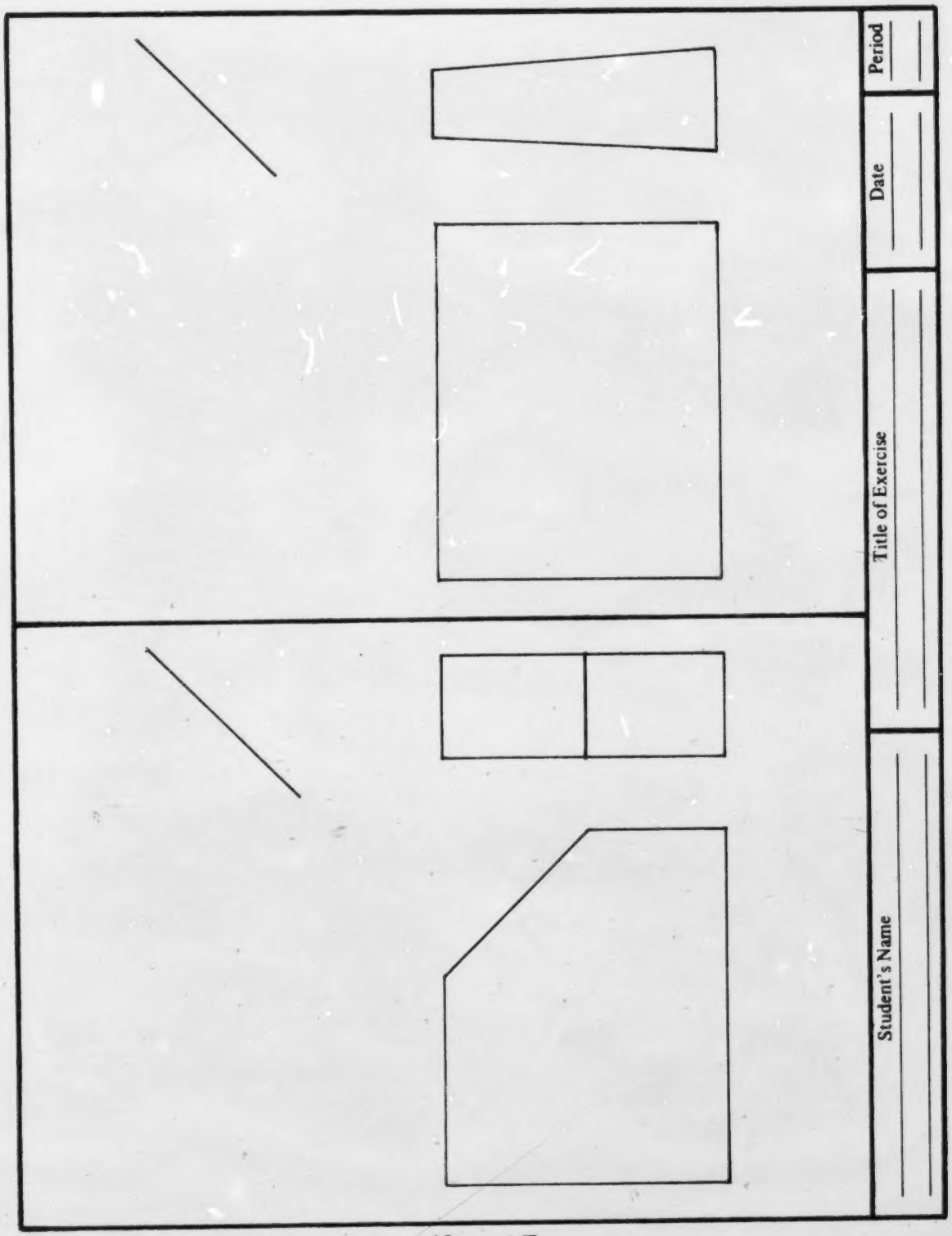


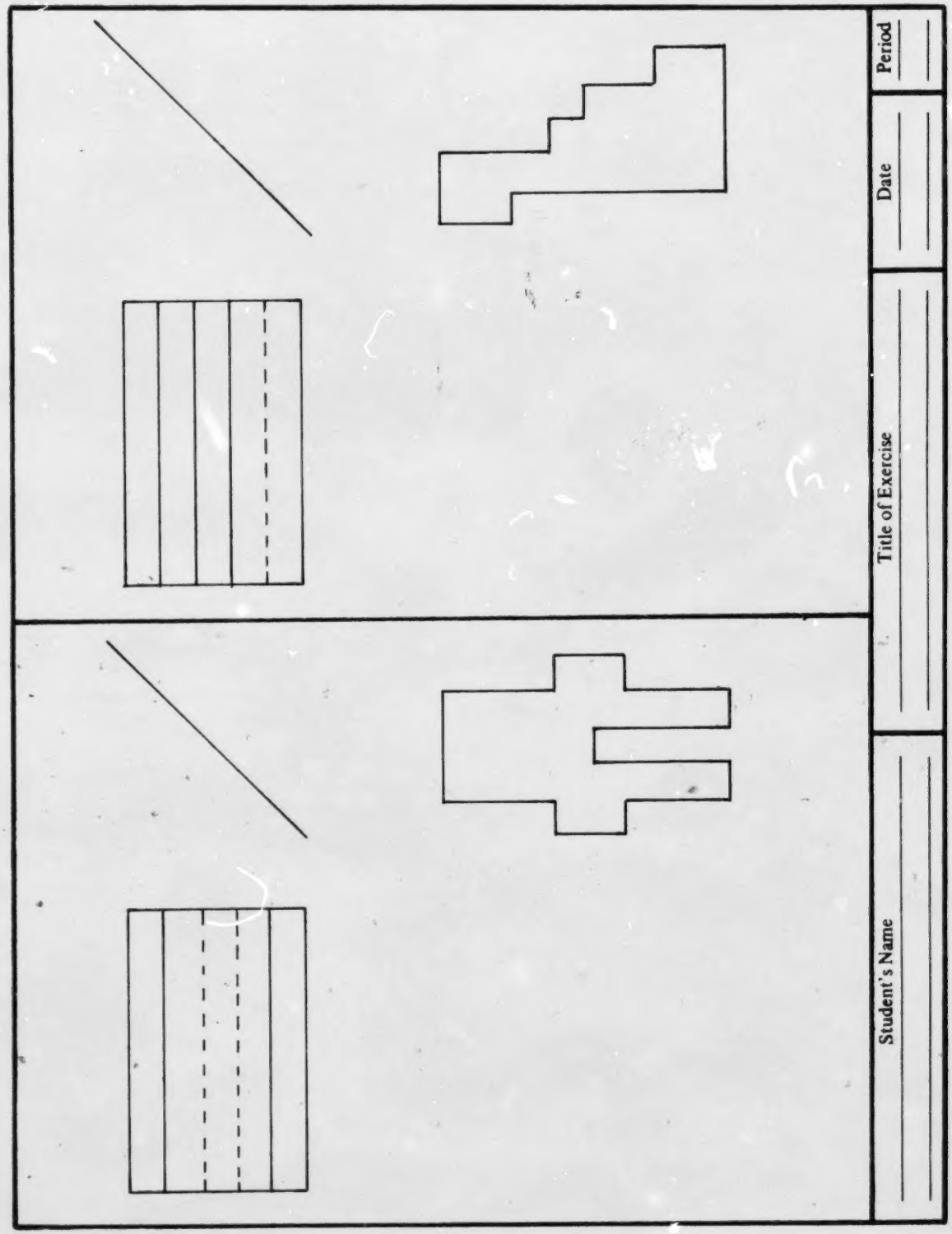
Title: *ORTHOGRAPHIC PROJECTION*

Recommended Use: *Place title block to bottom of board and letter. Draw top view of each object.*



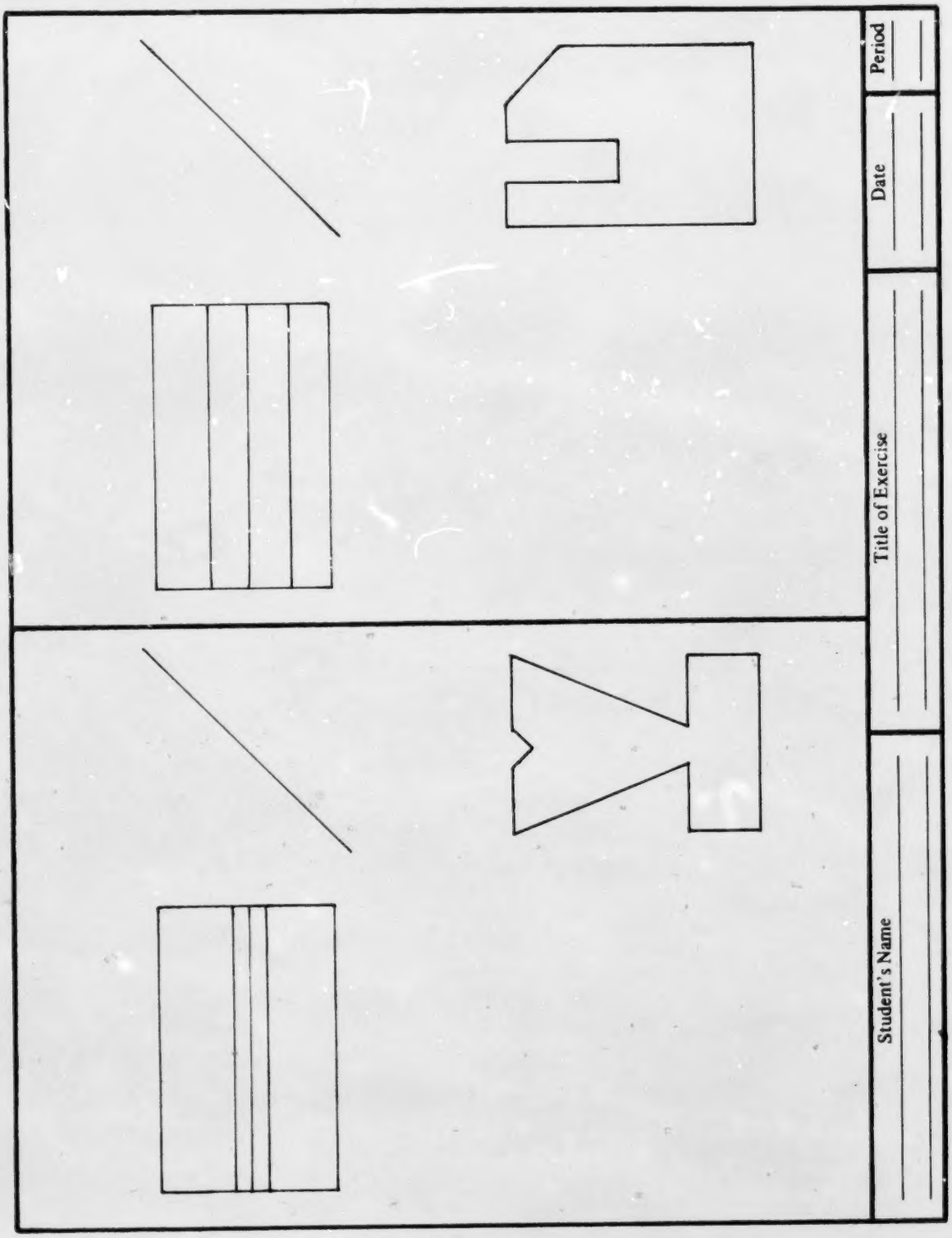
Title: *ORTHOGRPAHIC PROJECTION*

Recommended Use: *Place title block to bottom of board and letter. Draw front view of each object.*



Title: *ORTHOGRAPHIC PROJECTION*

Recommended Use: *Place title block to bottom of board and letter. Draw front view of each object.*



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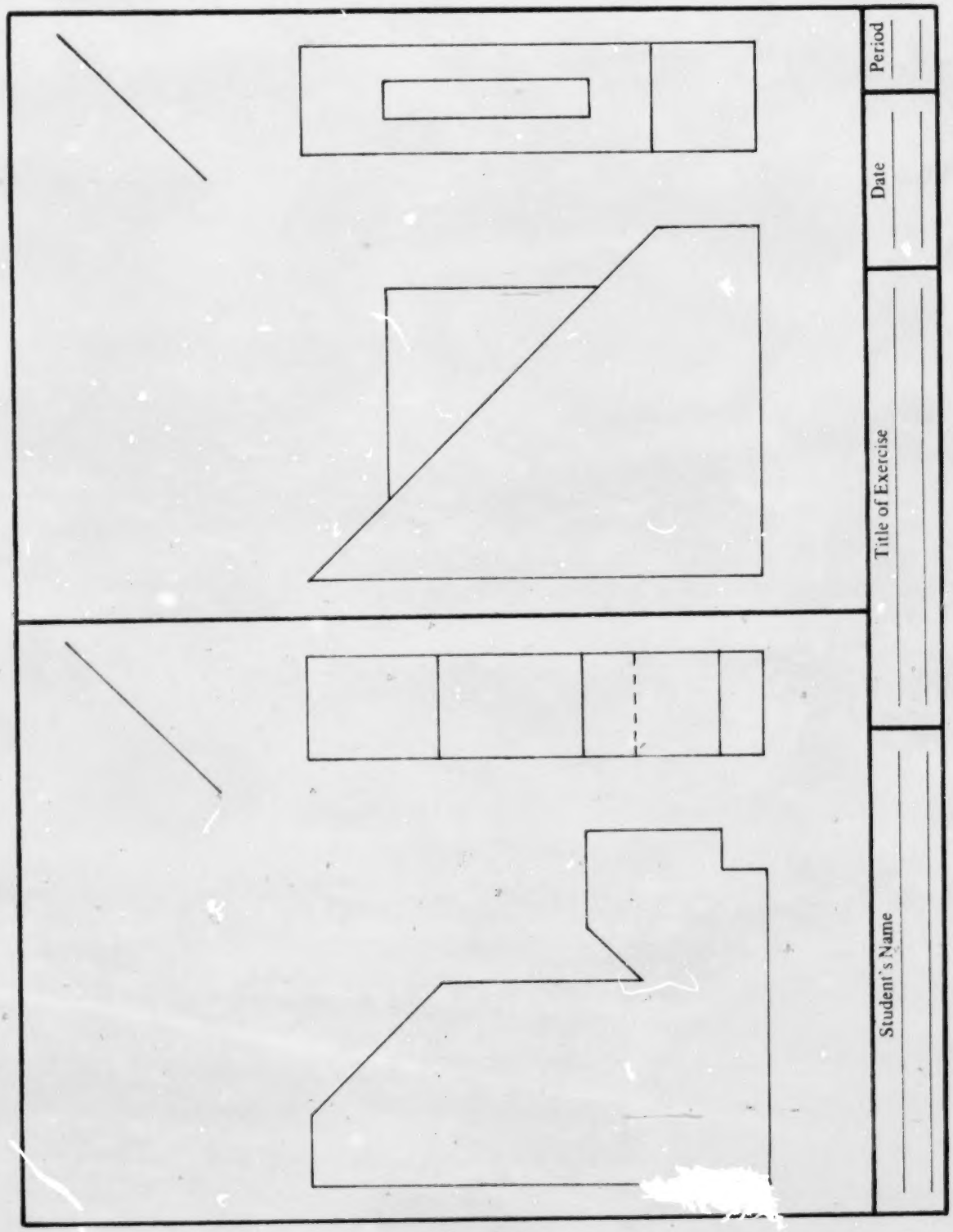
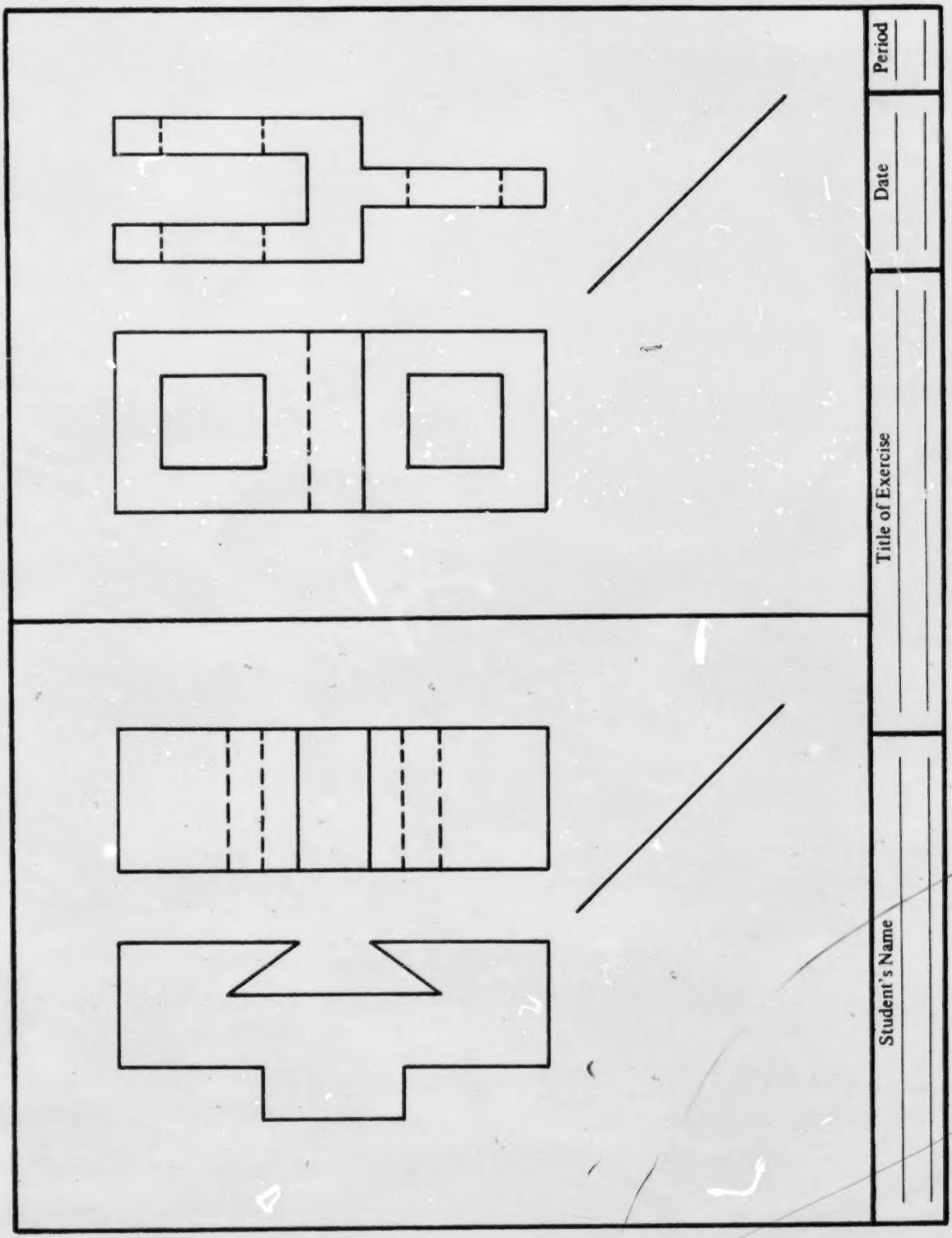


Title: *ORTHOGRAPHIC PROJECTION*

Recommended Use: *Place title block to right side of board and letter. Draw right side view of both objects.*



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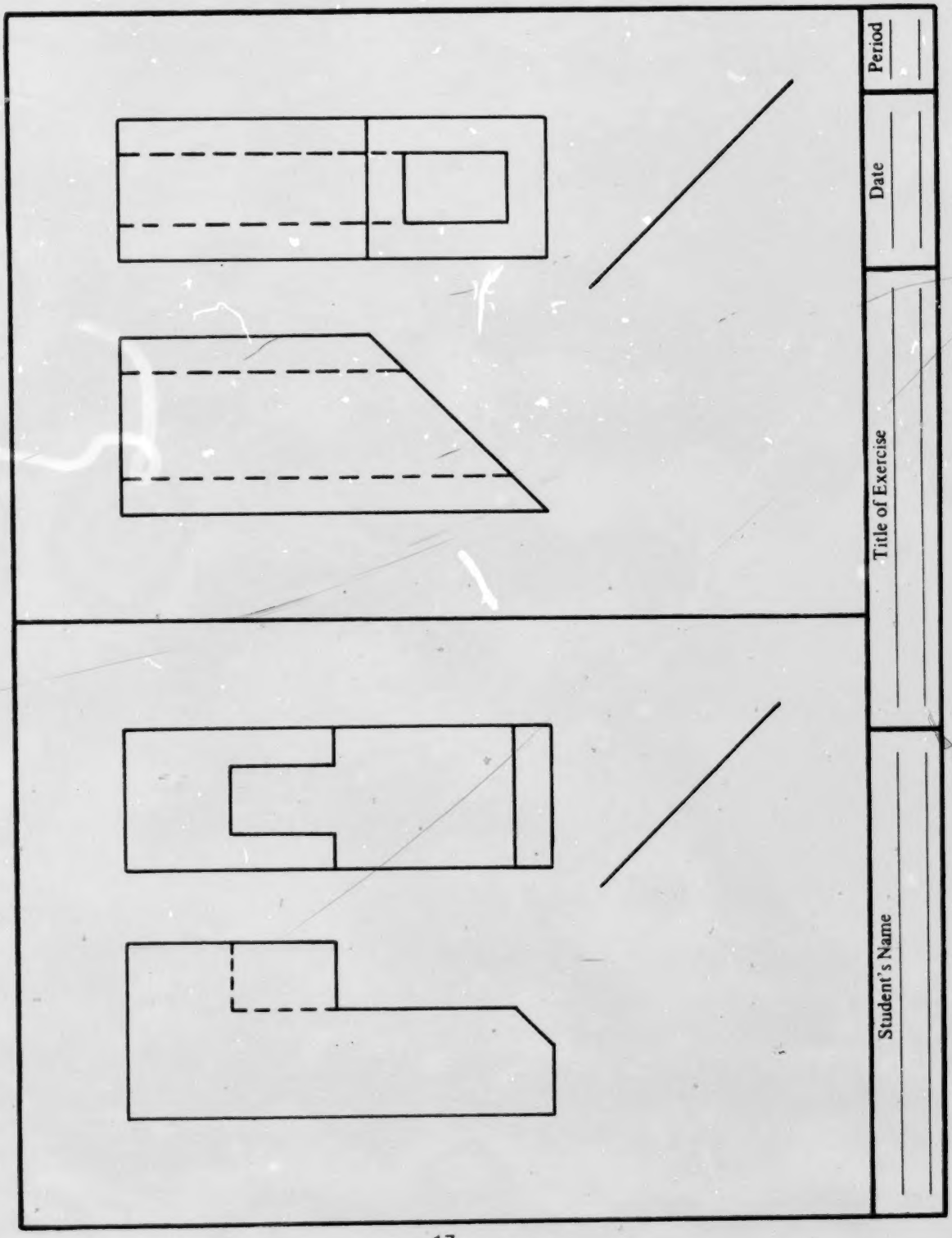

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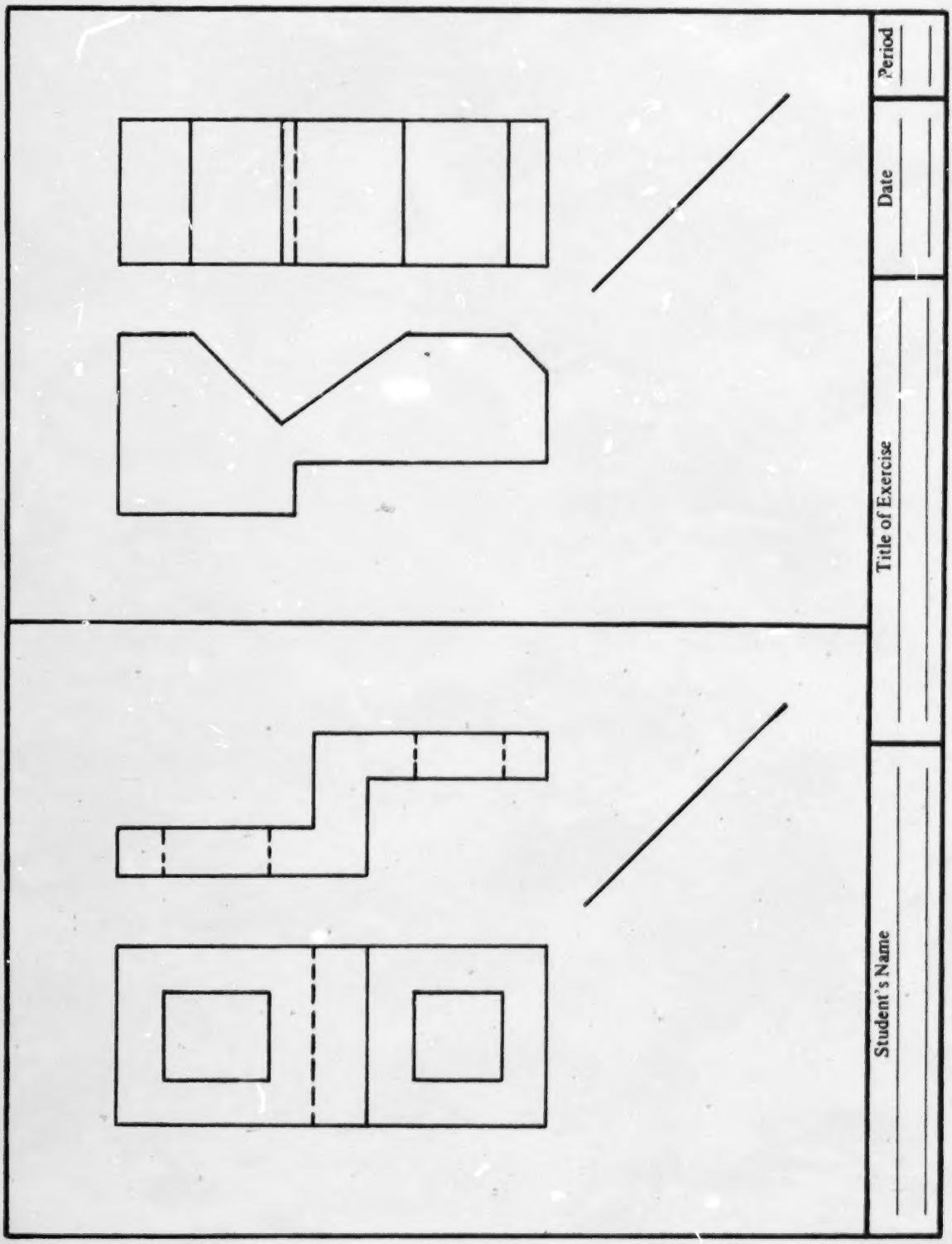
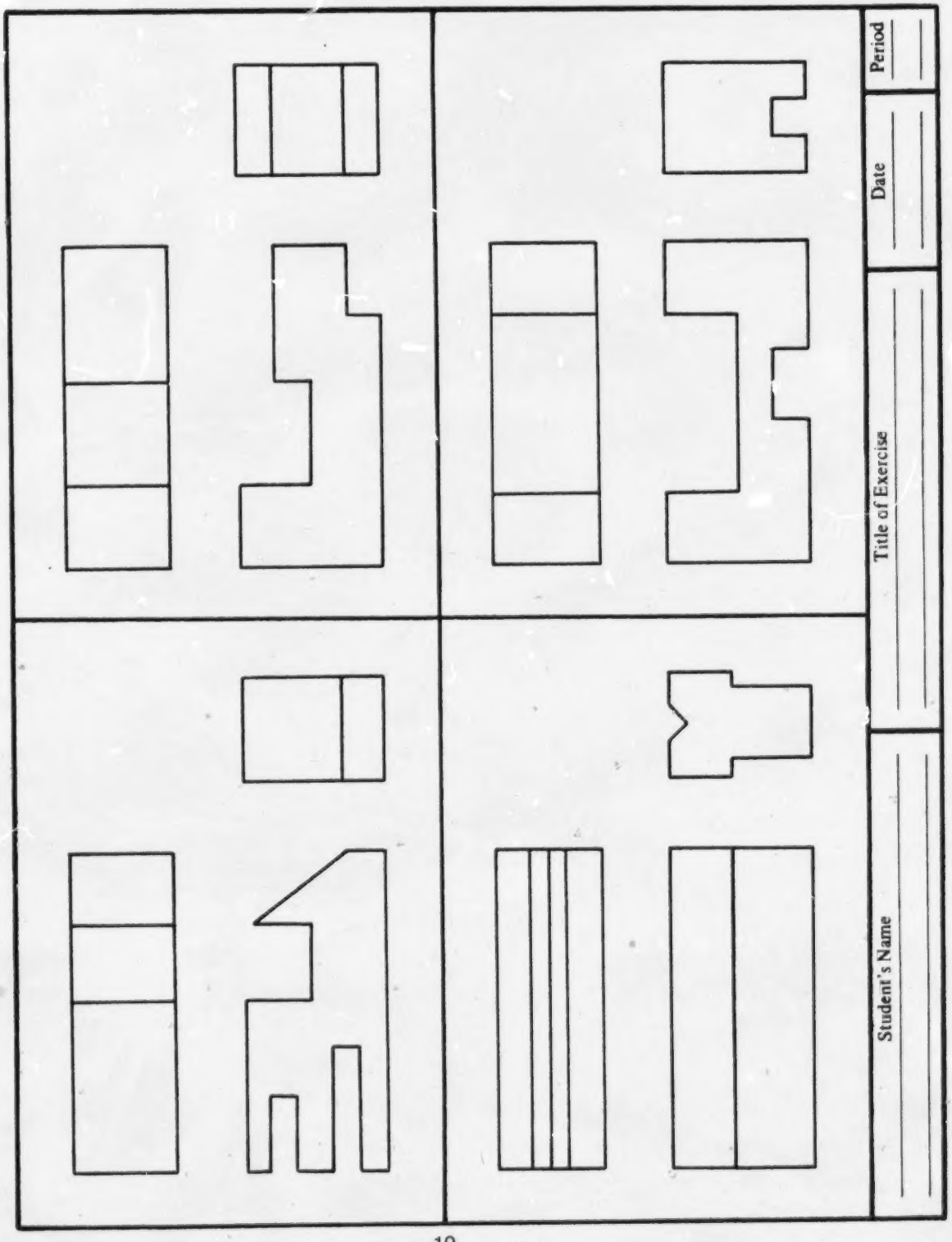


Title: *HIDDEN LINES*

Recommended Use: *Place title block to bottom of board and letter. Draw hidden lines which have been omitted on all views.*



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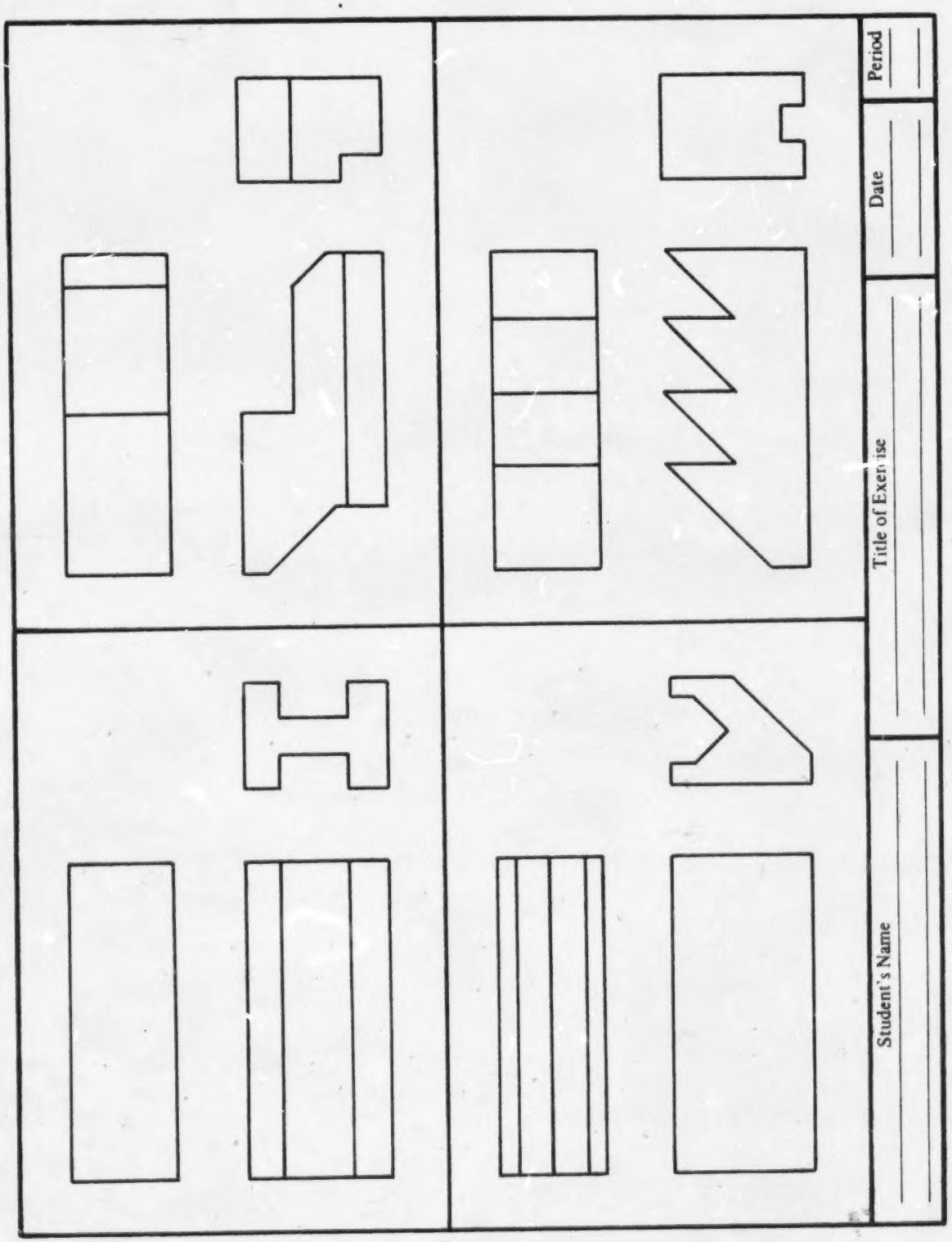
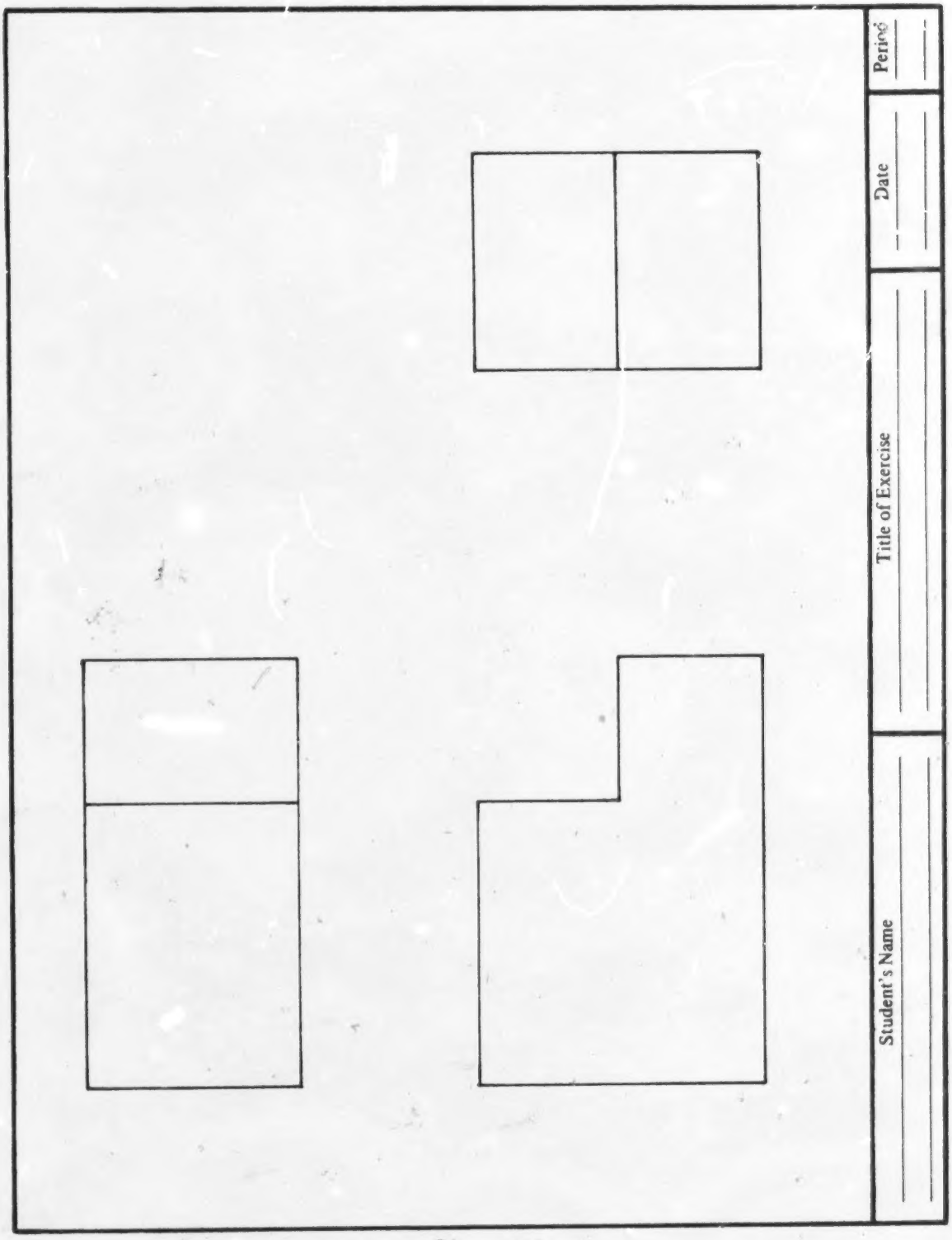


Title: *DIMENSIONING*

Recommended Use: *Place title block to bottom of board and letter. Using instruments completely dimension the 3 view drawing.*



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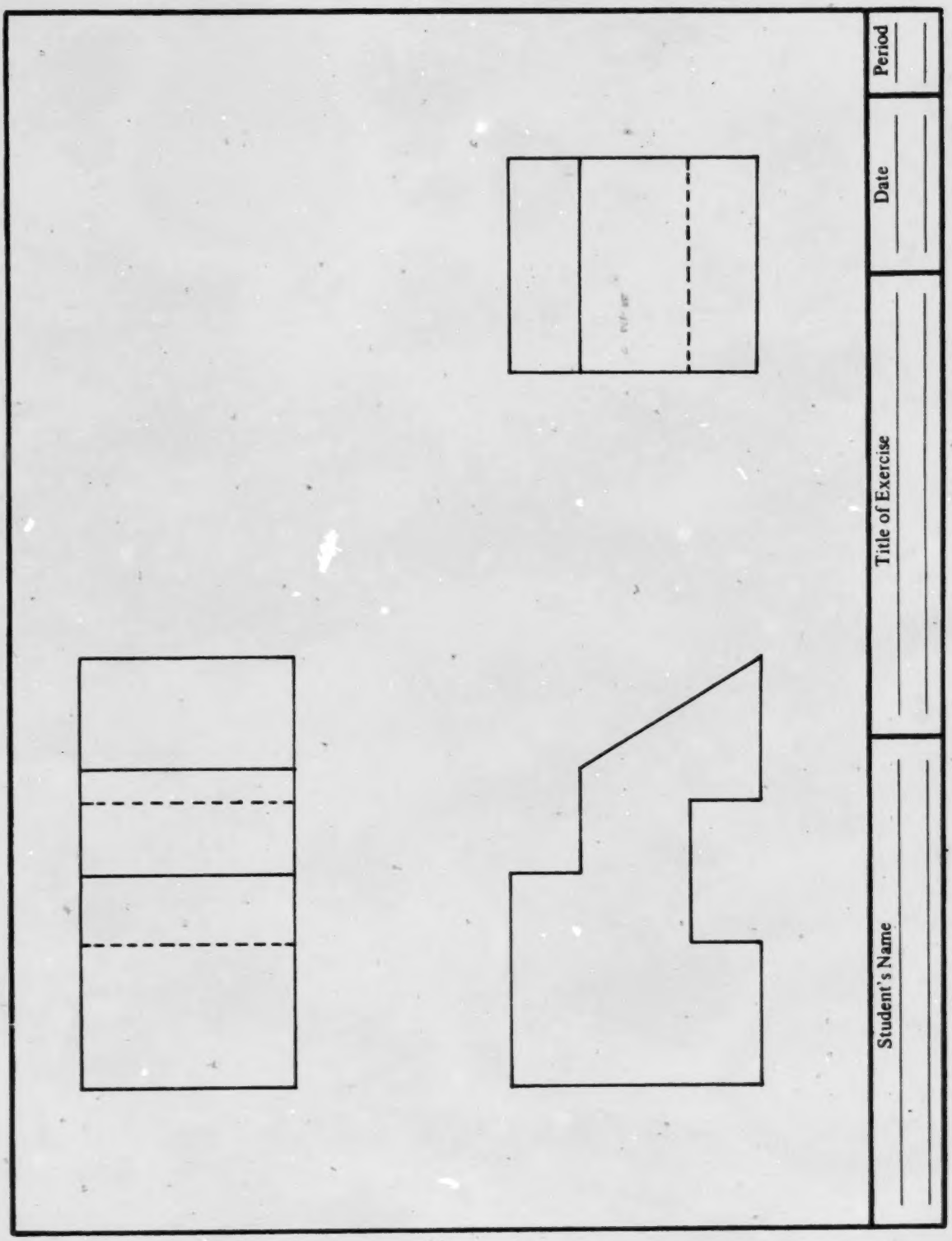

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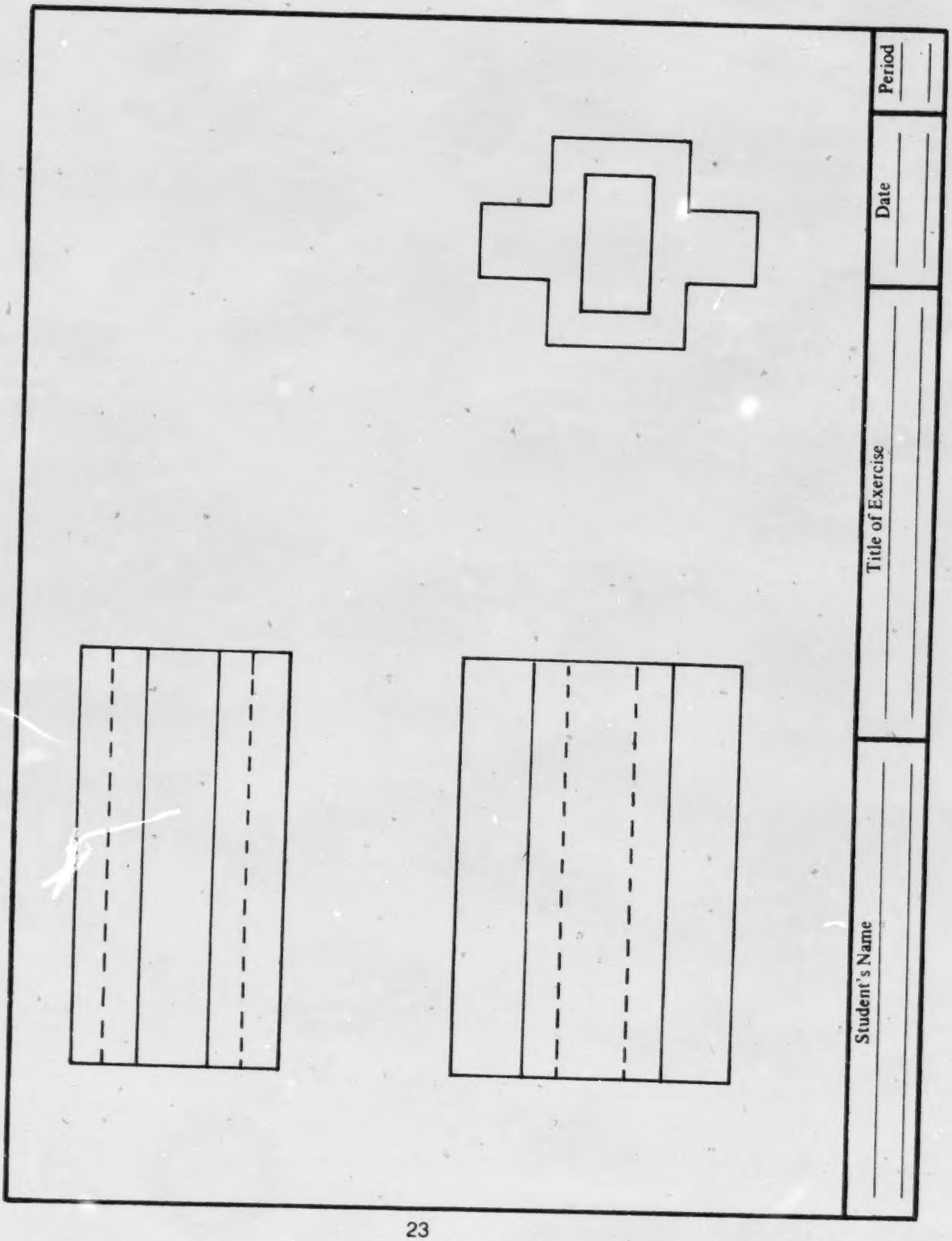
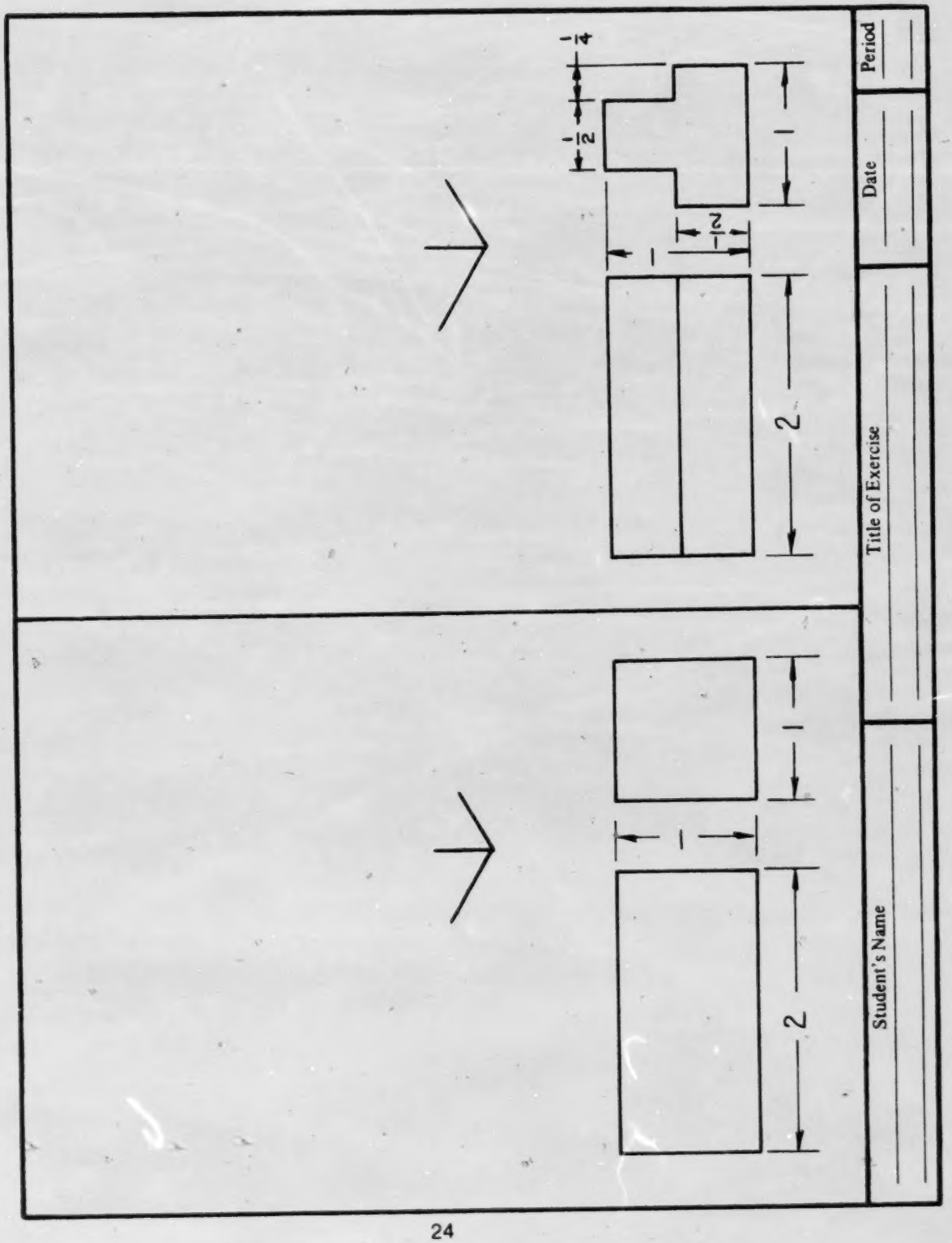


Title: *ISOMETRIC CONSTRUCTION*

Recommended Use: *Place title block to bottom of board and letter. Construct isometric drawing starting at reference axis.*



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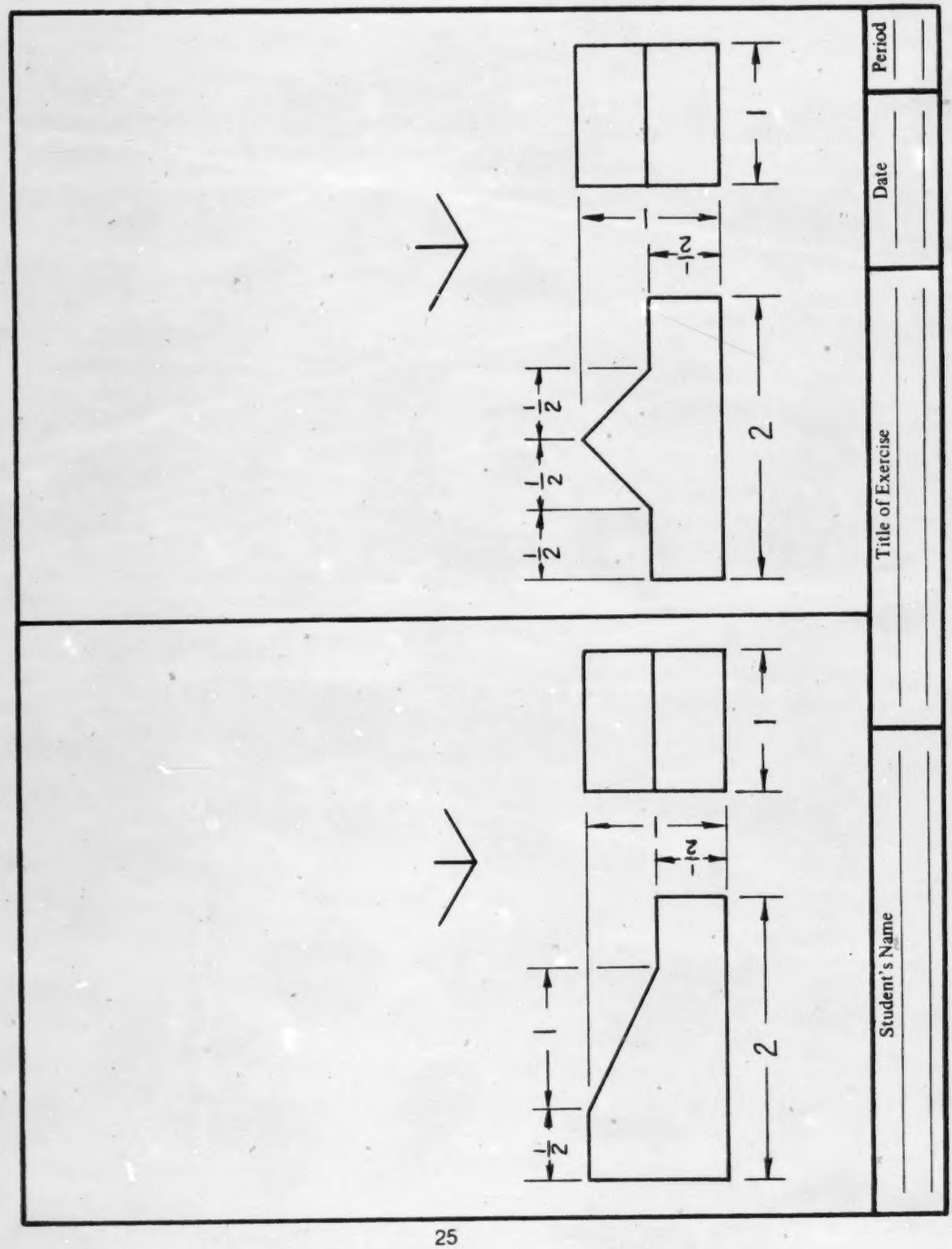

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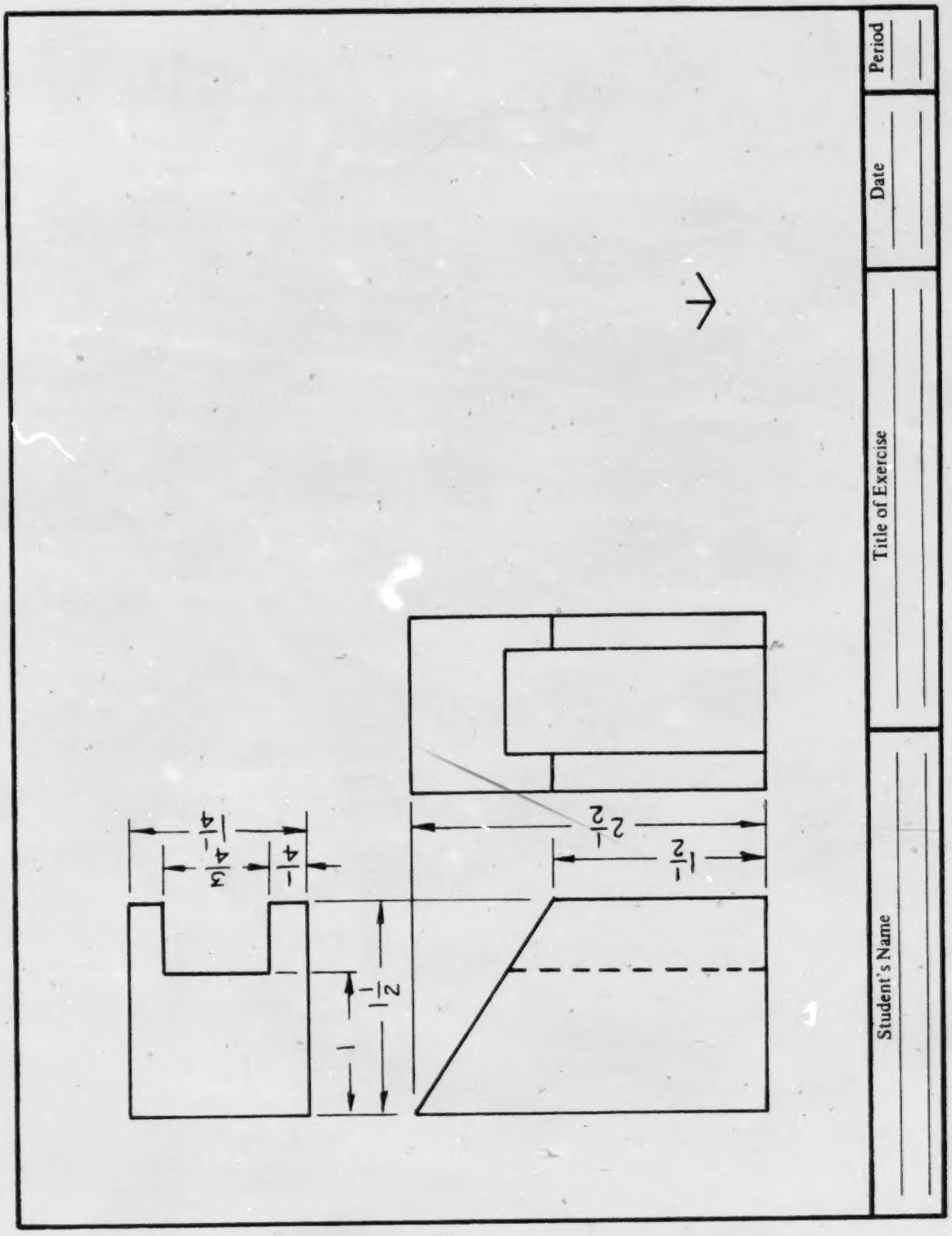

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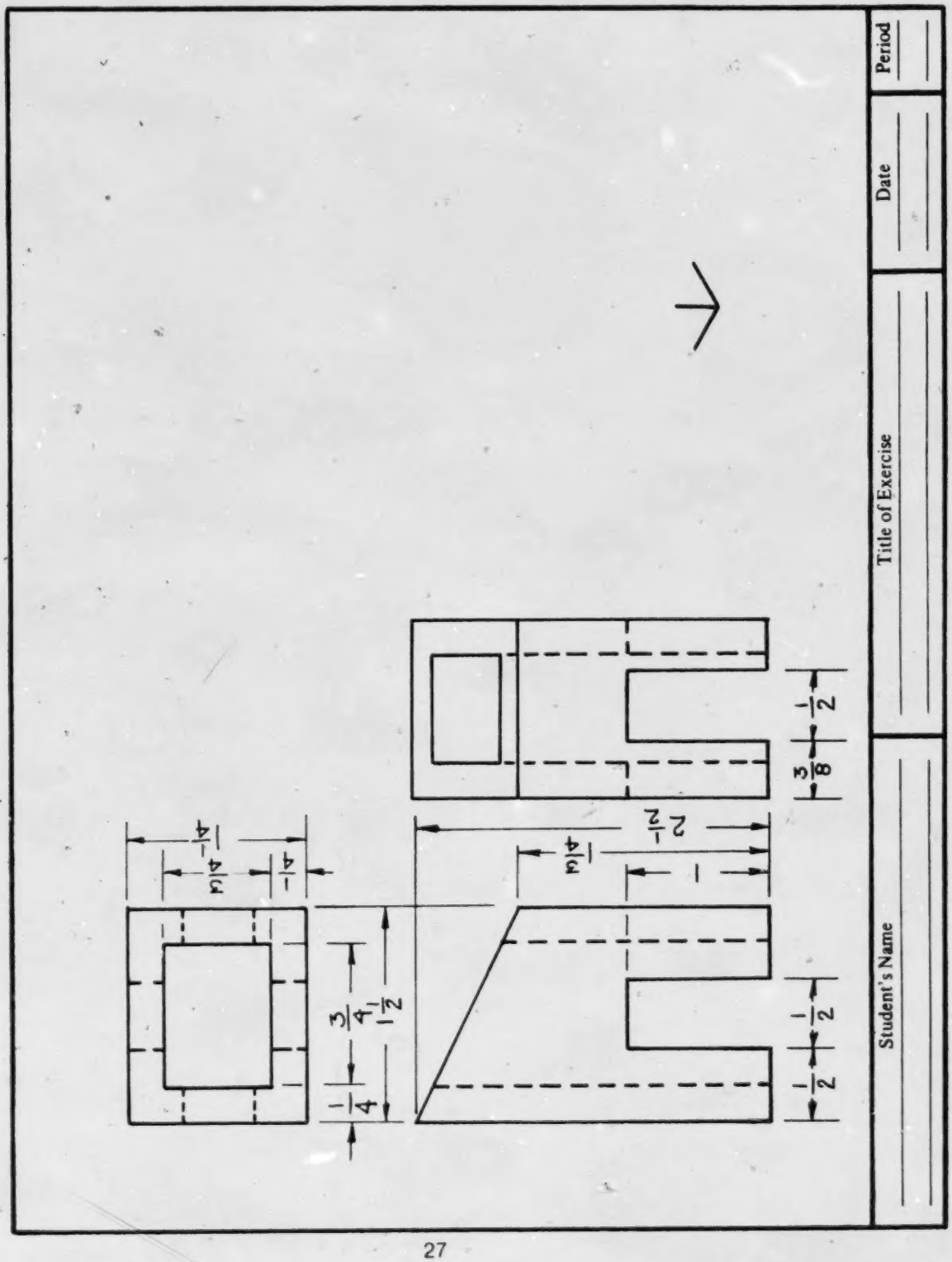
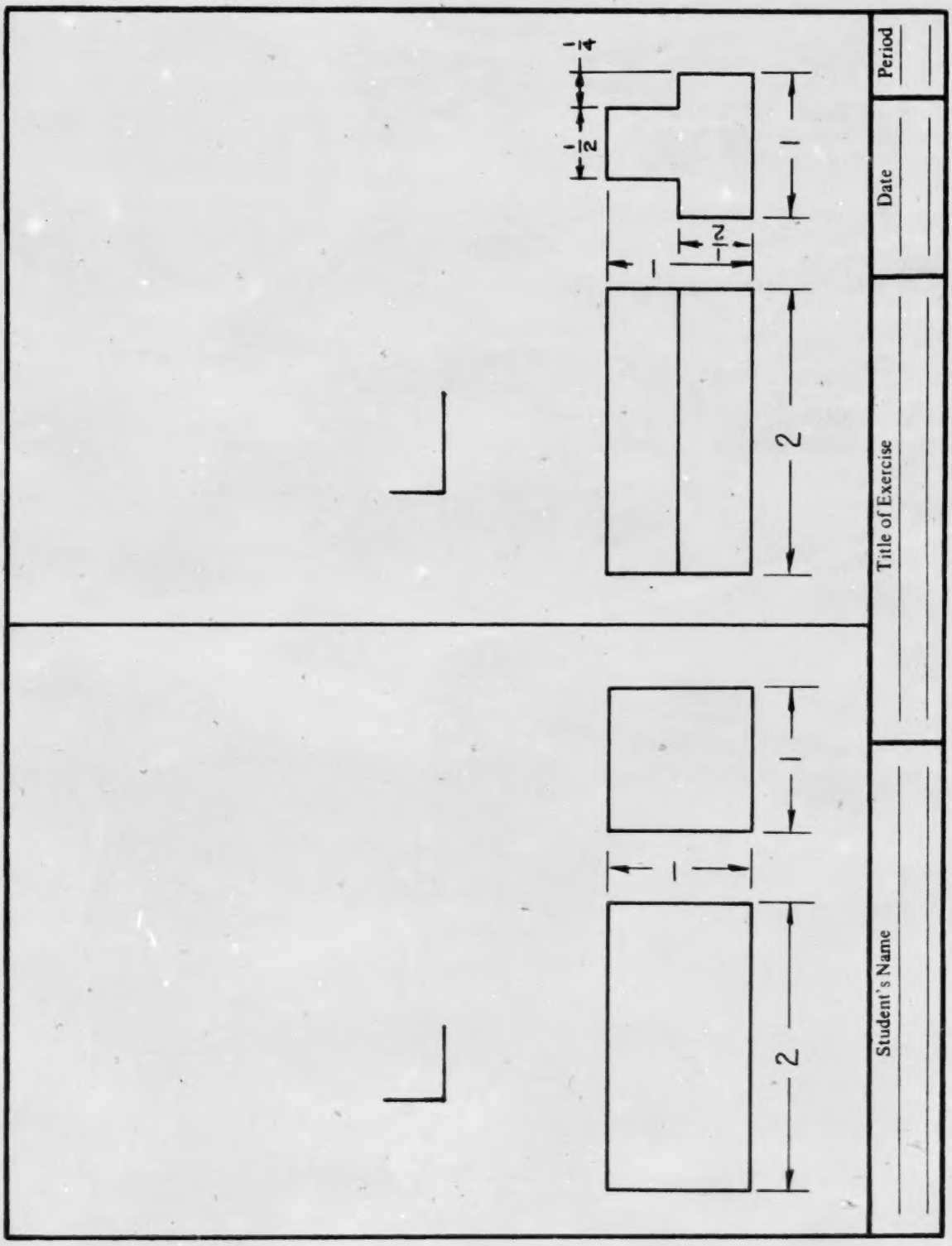
Recommended Use: *Place title block to bottom of board and letter. Construct isometric drawing starting at reference axis.*



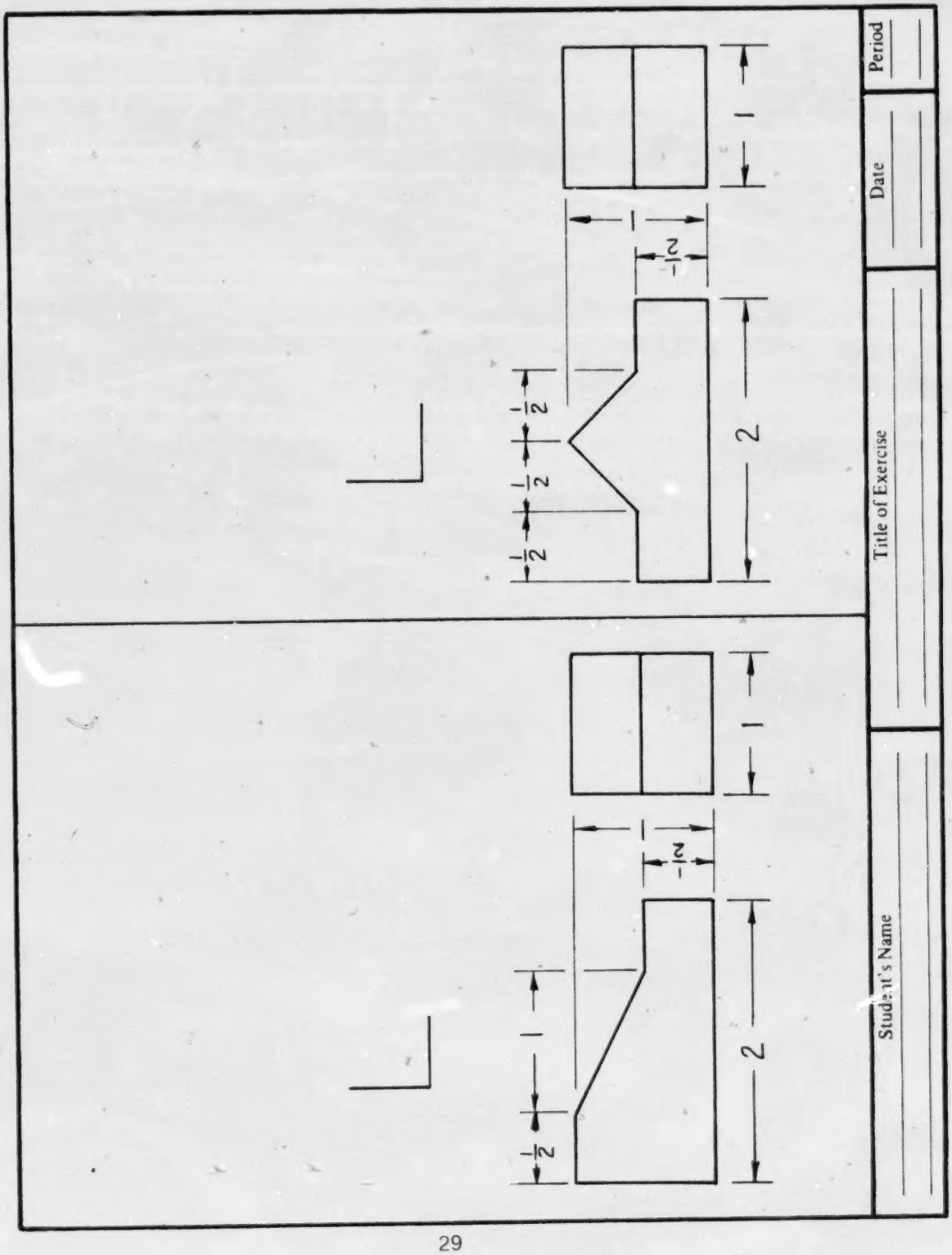
Title: *CABINET DRAWING*

Recommended Use: *Place title block to bottom of board and letter. Construct cabinet view of object starting where indicated.*



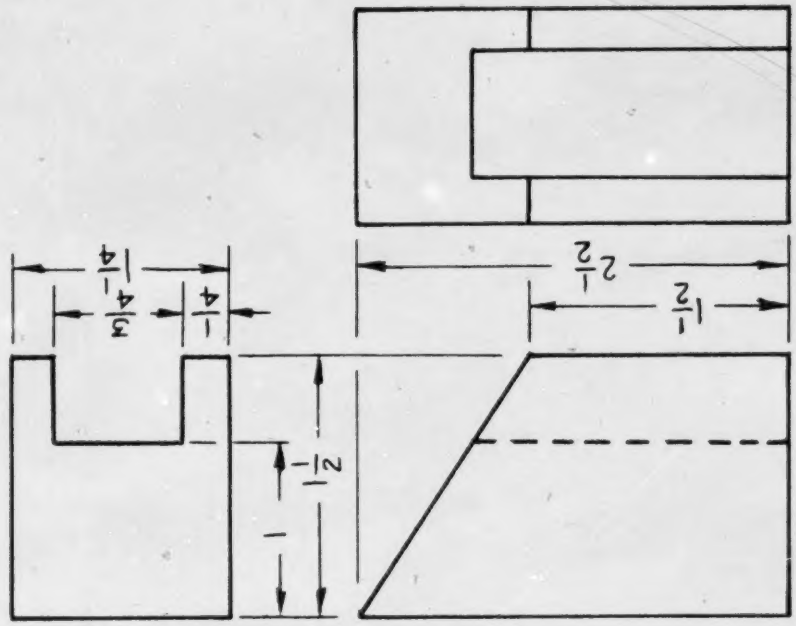
Title: *CABINET DRAWING*

Recommended Use: *Place title block to bottom of board and letter. Construct cabinet view of object starting where indicated.*



Title: *CABINET DRAWING*

Recommended Use: *Place title block to bottom of board and letter. Construct cabinet view of object starting where indicated.*



Period

Date

Title of Exercise

Student's Name

TESTS

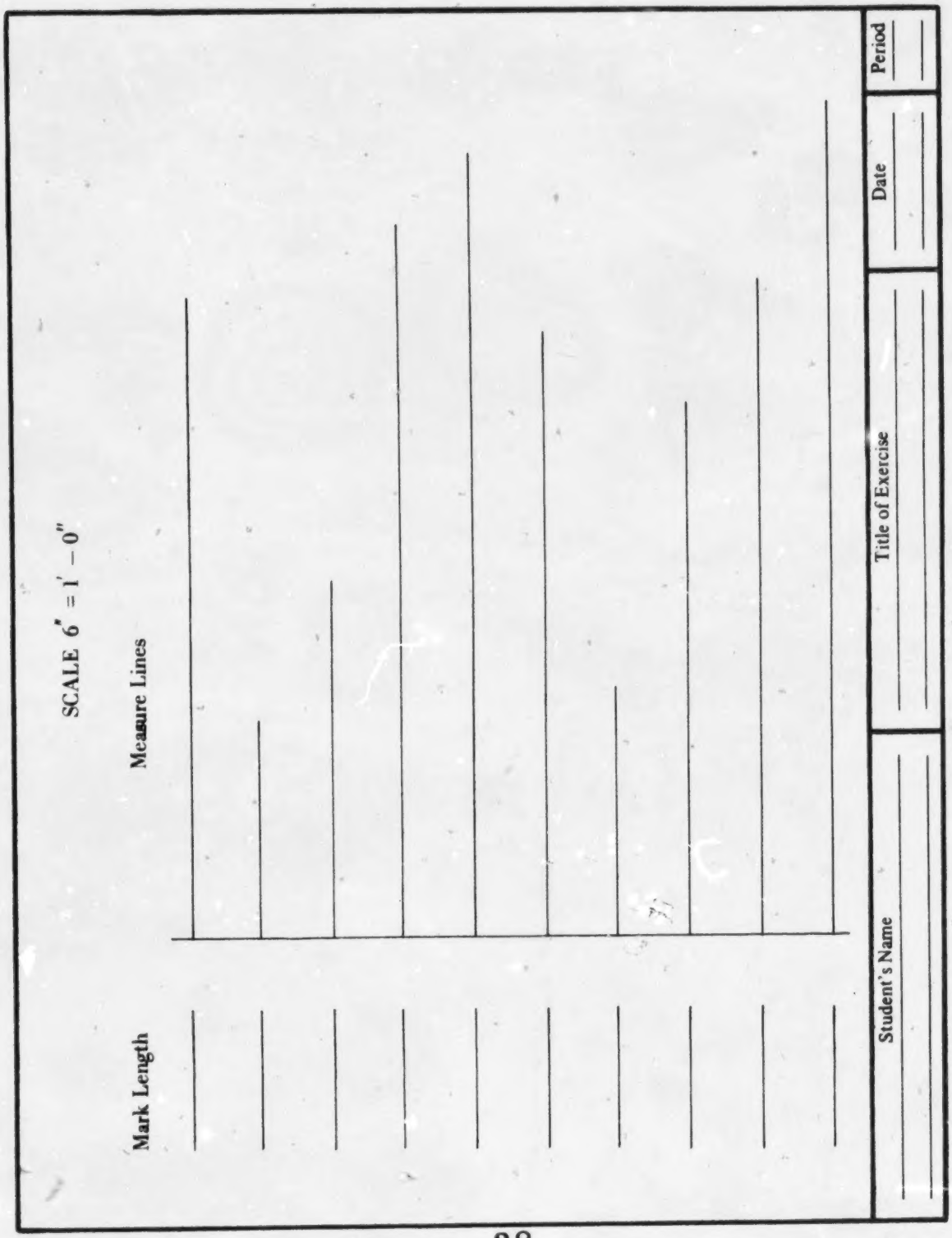
INSTRUCTIONS FOR TESTS

These tests were designed to help determine how well students understand certain aspects of drawing. The tests could be administered at the end of a unit of study for a certain phase of drafting, or after a few exercises or regularly assigned plates to determine if additional assignments are needed.

Instruction for students are identical to those pertaining to the exercises. A grading key and light table should also be used to quickly score tests.

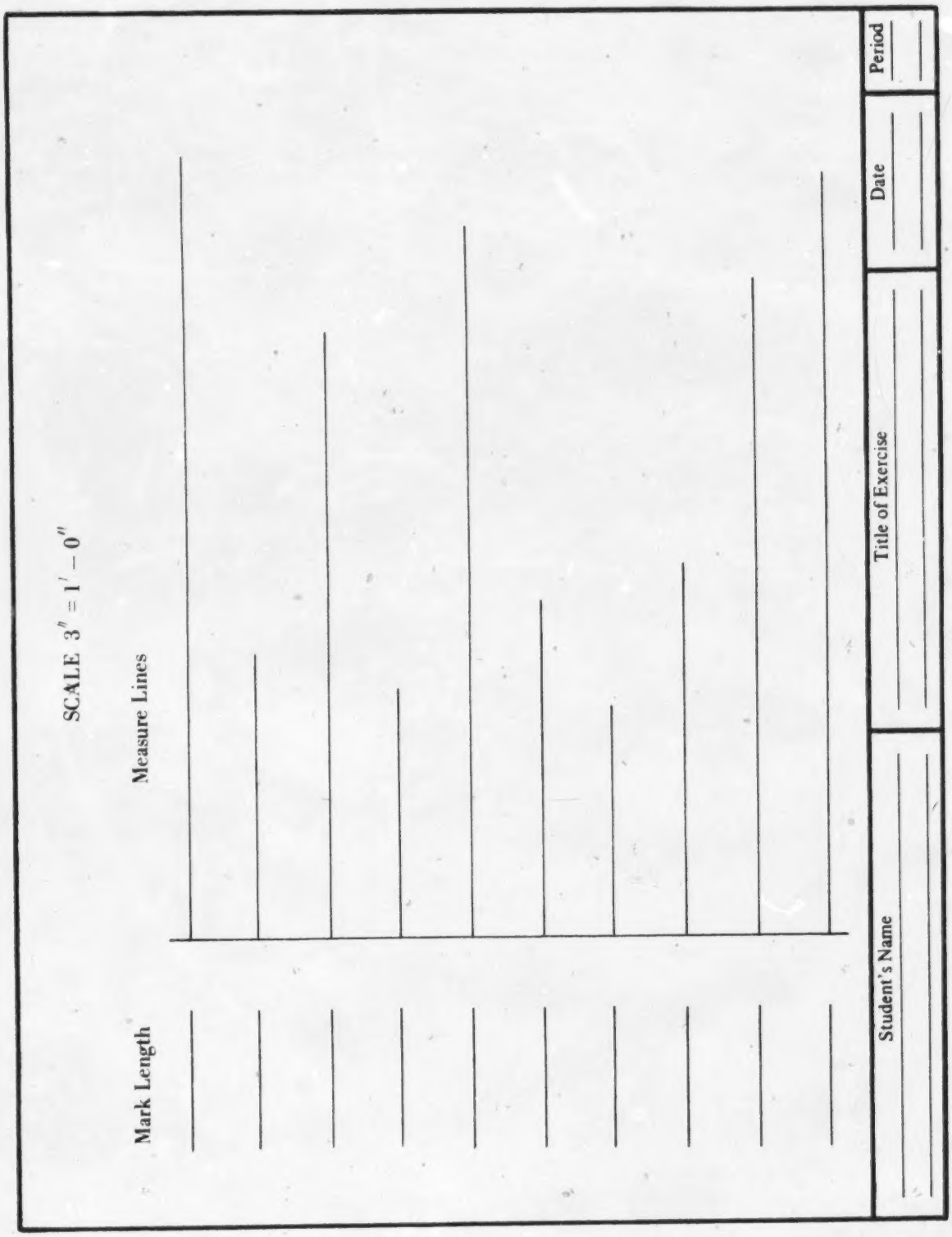
Title: *SCALE MEASURING TEST*

Recommended Use: *Place title block to bottom of board and letter. Using scale indicated, measure lines and mark lengths.*



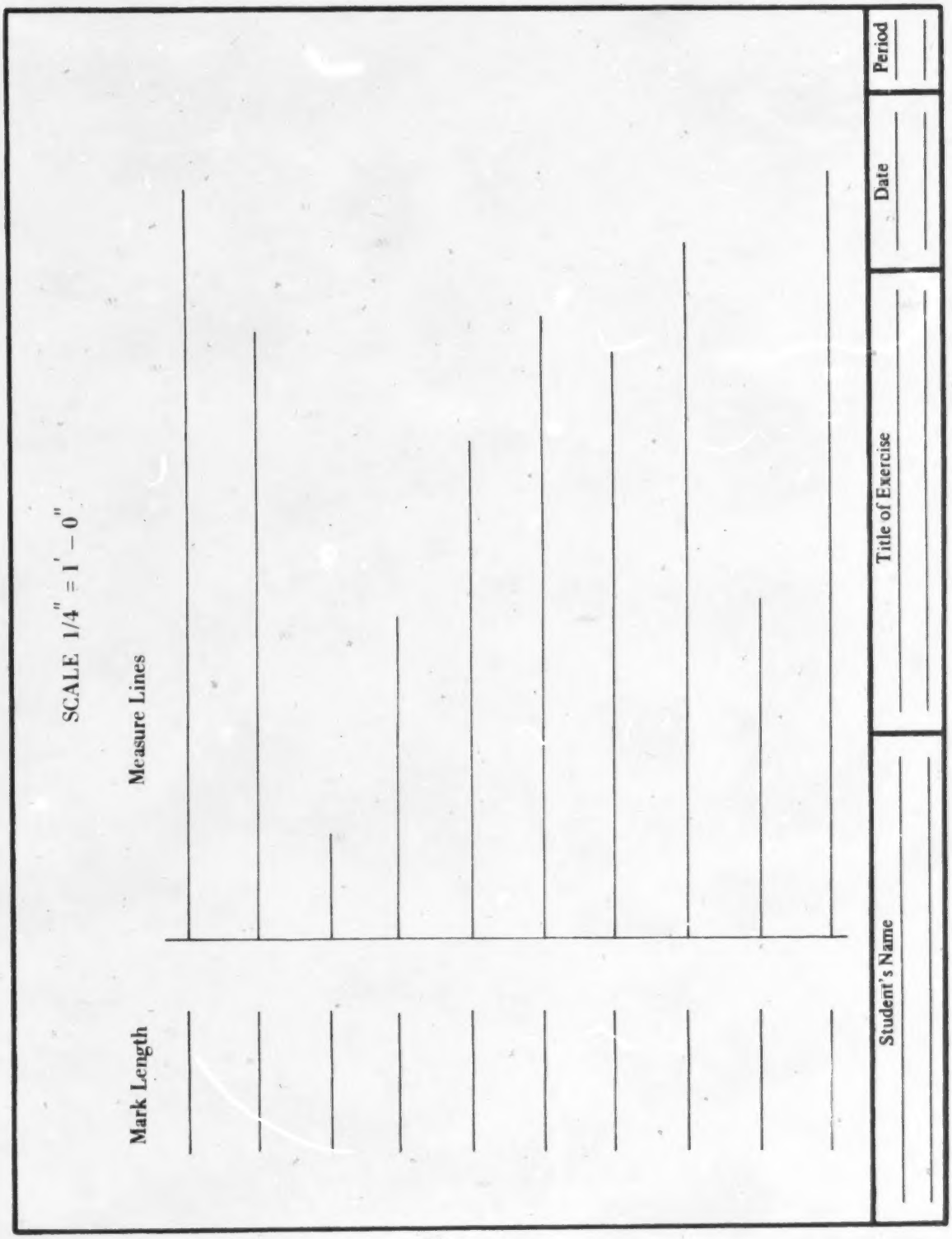
Title: *SCALE MEASURING TEST*

Recommended Use: *Place title block to bottom of board and letter. Using scale indicated, measure lines and mark lengths.*



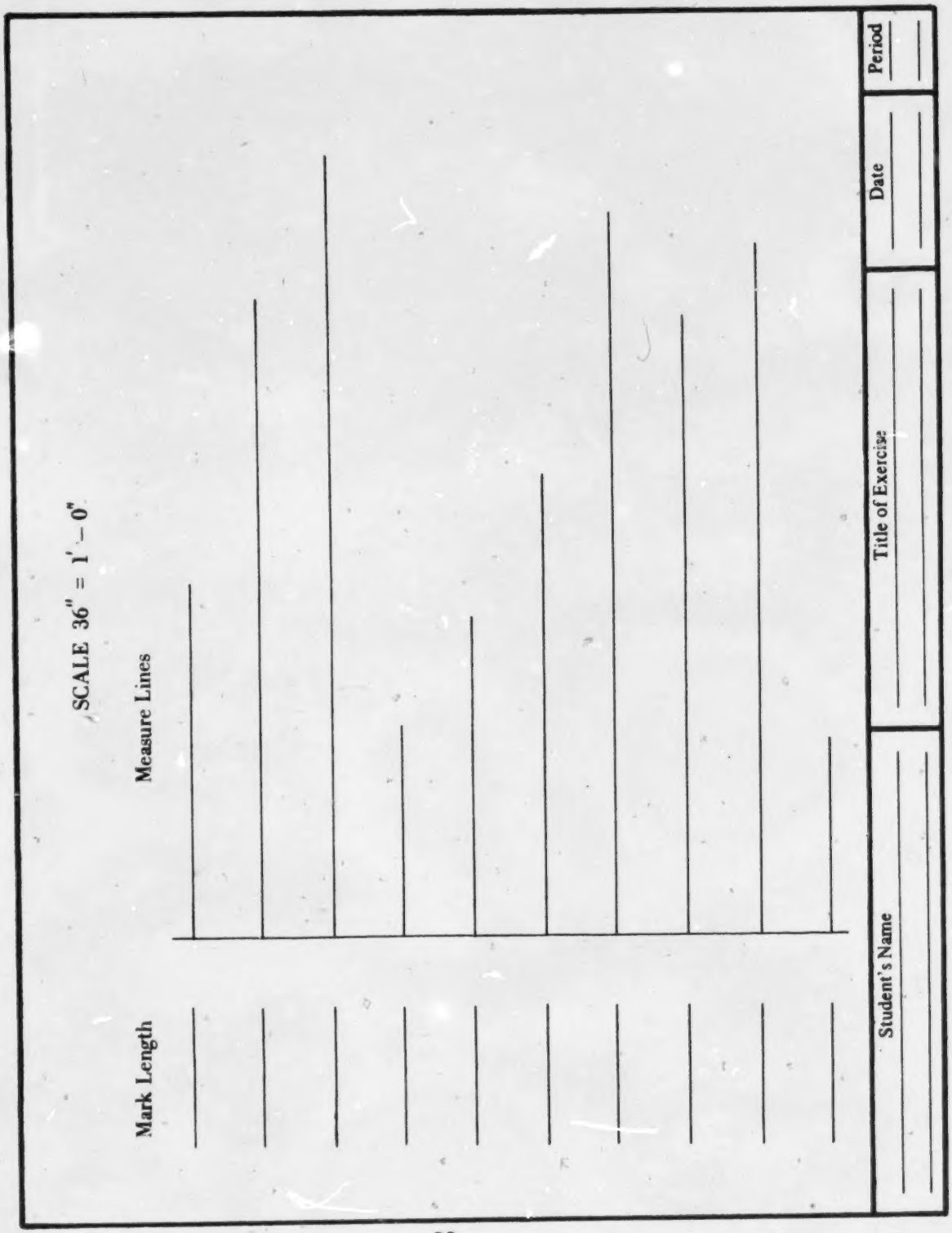
Title: *SCALE MEASURING TEST*

Recommended Use: *Place title block to bottom of board and letter. Using scale indicated, measure lines and mark lengths.*



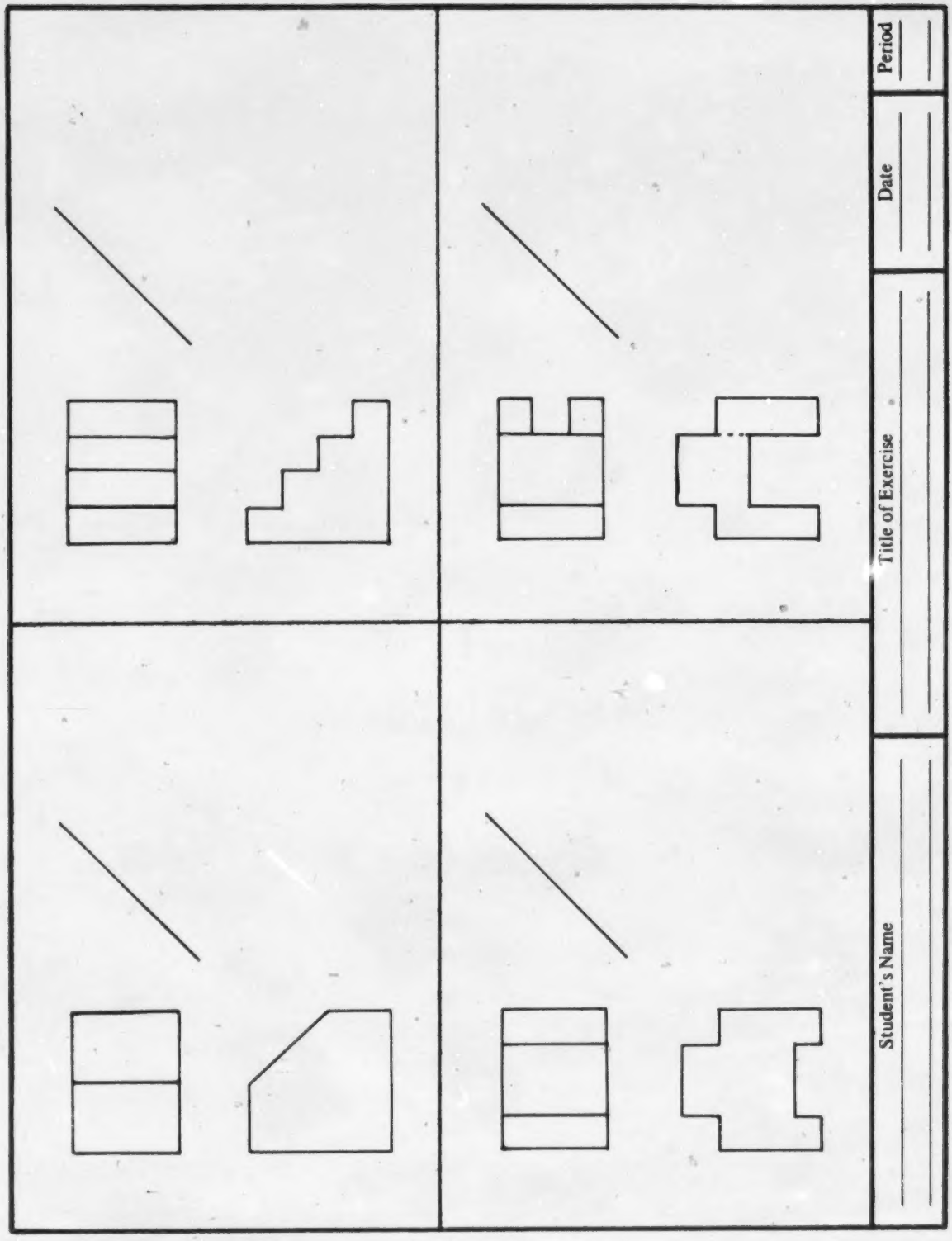
Title: *SCALE MEASURING TEST*

Recommended Use: *Place title block to bottom of board and letter. Using scale indicated, measure lines and mark lengths.*



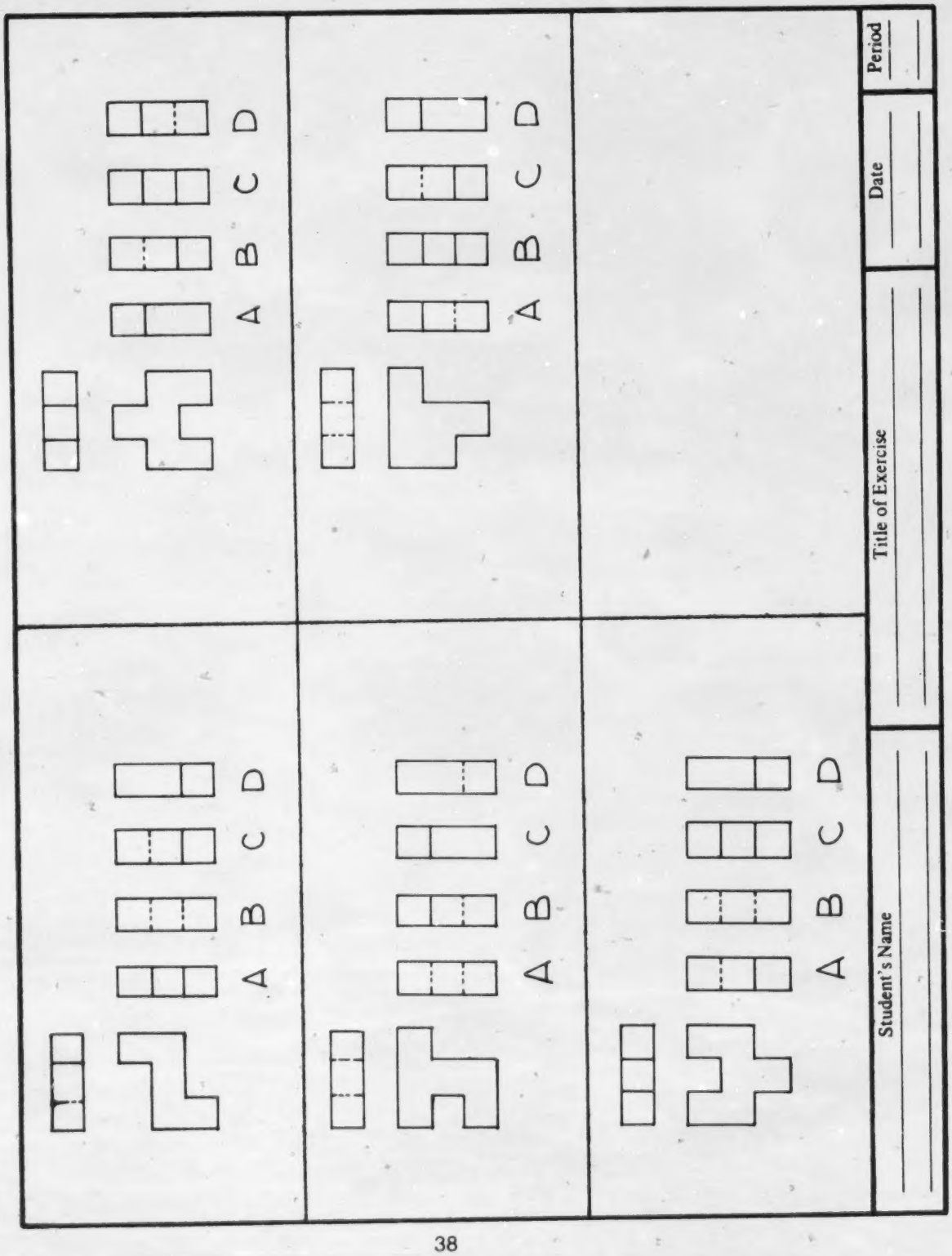
Title: *ORTHOGRAPHIC PROJECTION TEST*

Recommended Use: *Place title block to bottom of board and letter. Draw right side view of each object.*



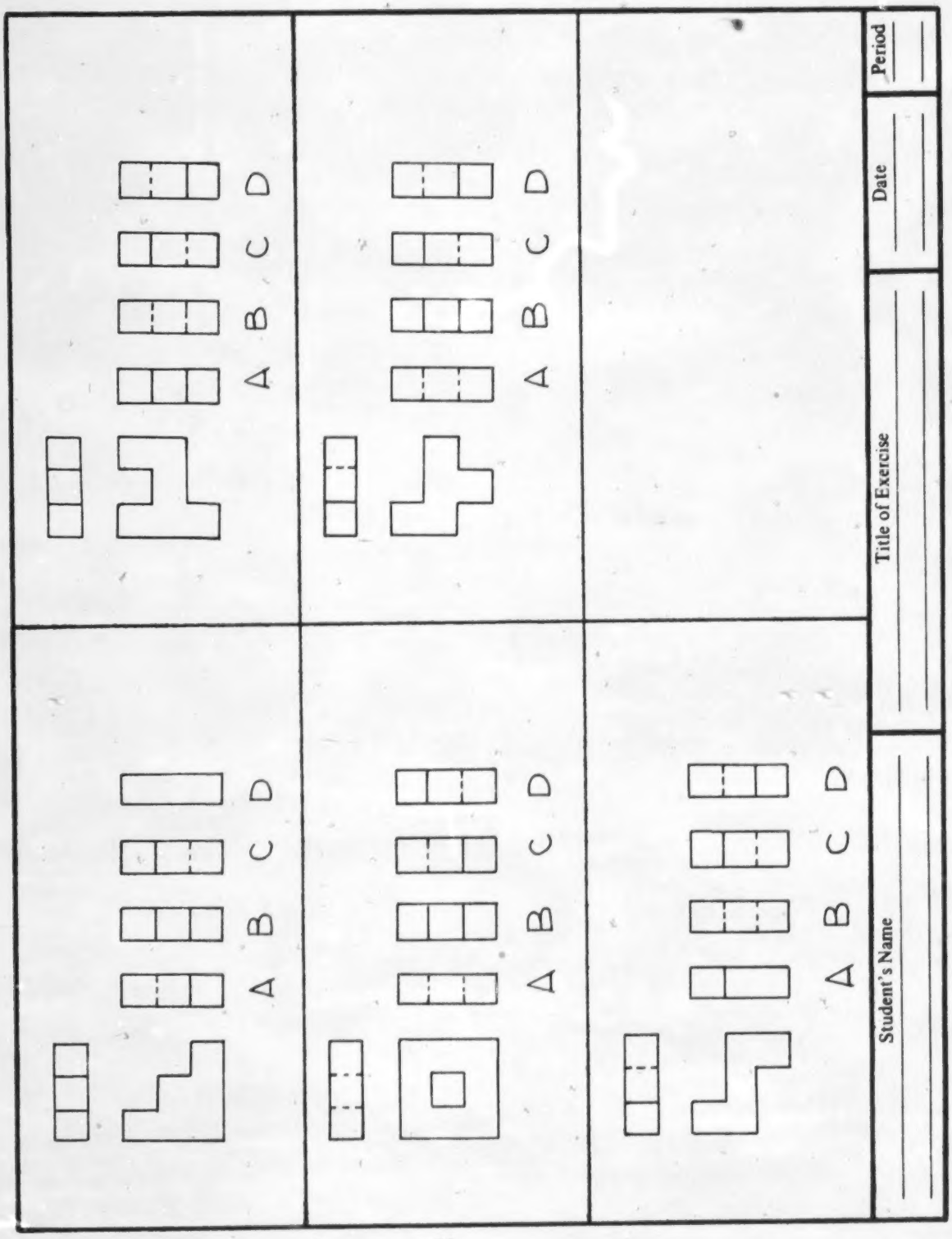
Title: *ORTHOGRAPHIC PROJECTION TEST*

Recommended Use: *Place title block to bottom of board and letter. Study the front and top view of each drawing and select the correct right side view for the object. Draw a circle around the letter underneath the correct view.*



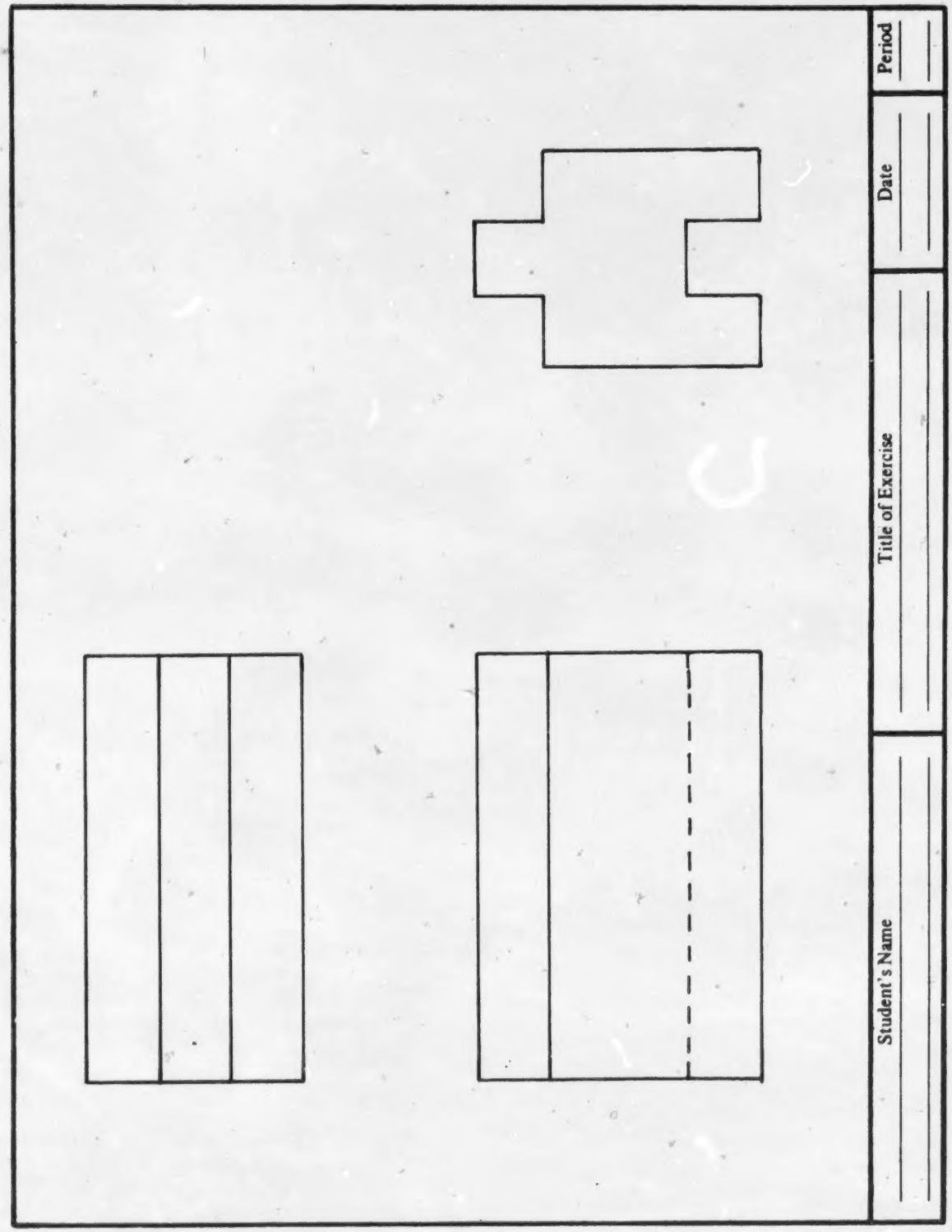
Title: *HIDDEN LINES TEST*

Recommended Use: *Place title block to bottom of board and letter. Study the front and top view of each drawing and select the correct right side view for the object. Draw a circle around the letter underneath the correct view.*



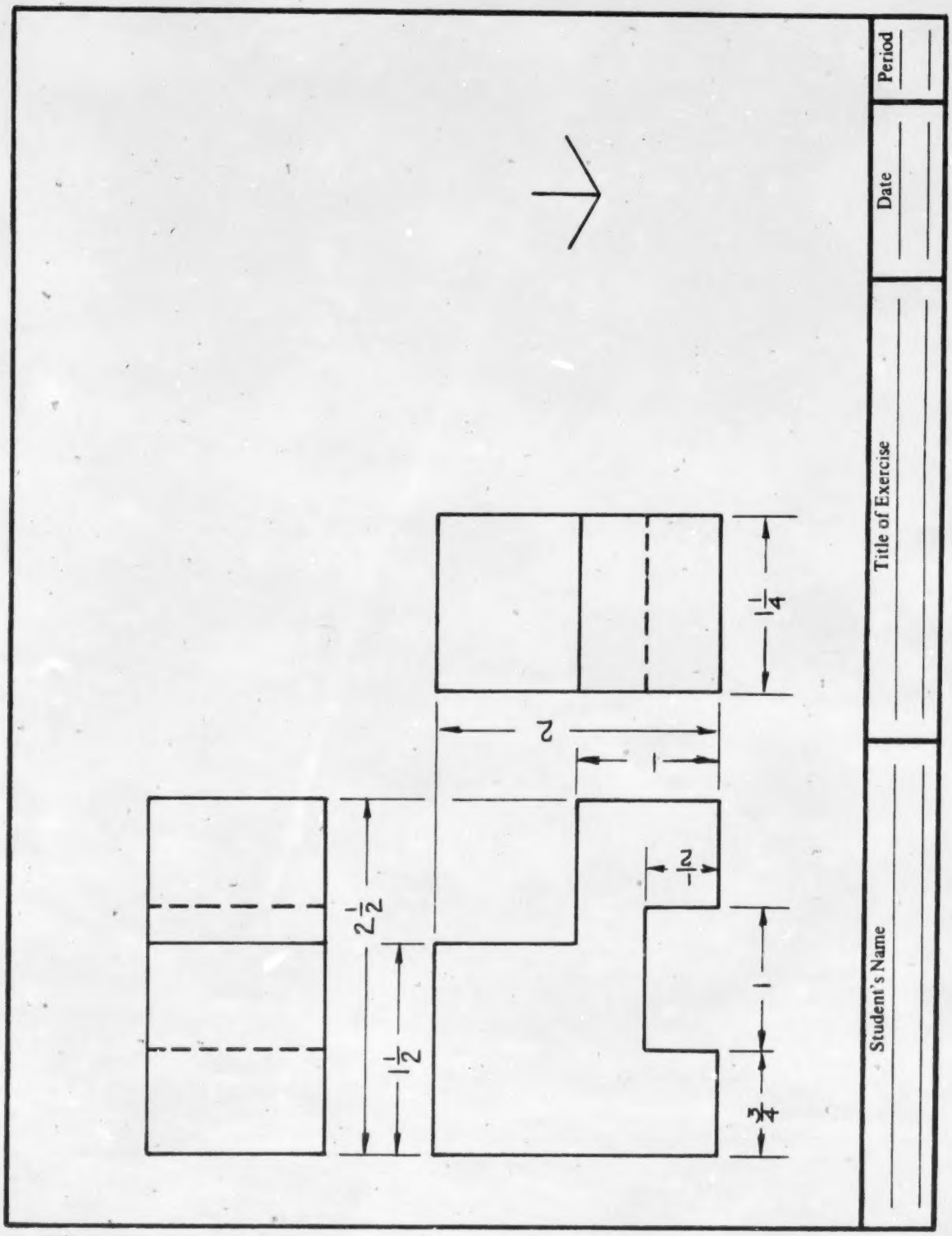
Title: *DIMENSIONING TEST*

Recommended Use: *Place title block to bottom of board and letter. Using instruments completely dimension the 3 view drawing.*



Title: *ISOMETRIC CONSTRUCTION TEST*

Recommended Use: *Place title block to bottom of board and letter.*
Construct isometric drawing starting at reference axis.



Title: *CABINET DRAWING TEST*

Recommended Use: *Place title block to bottom of board and letter. Construct cabinet view of object starting where indicated.*